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ABSTRACT

The four 1996 issues of this journal contain the following articles: "Sketch of Autosegmental Tonology" (H. Andrew Black); "System Relationships in Assessing Dialect Intelligibility" (Margaret Milliken, Stuart Milliken); "A Step-by-Step Introduction to Government and Binding Theory of Syntax" (Cheryl A. Black); "Participatory Research in Linguistics" (Constance Kutsch Lojenga); "Introduction to Government and Binding Theory II" (Cheryl A. Black); What To Do with CECIL?" (Joan Baart); "WINCECIL" (Jerold A. Edmondson); "Introduction to Government and Binding Theory III" (Cheryl A. Black); and "Mainland Southeast Asia: A Unique Linguistic Area" (Brian Migliazza). Each issue also contains notes from the SIL Linguistics Department coordinator, a number of reports on linguistics association conferences around the world, book and materials reviews, and professional announcements. (MSE)

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Notes from the Linguistics Coordinator

Participation in upcoming Linguistic Conferences

The SIL Linguistics Department at Dallas often gets queries as to whether we know what SIL members will be at some upcoming linguistics conference, things like LSA, ACAL, SEALS, SSILA, etc. It is usually the case that the only ones we are aware of are those who have applied for travel assistance from the PMTF (Professional Meetings Travel Fund). SIL members and other associates often find it advantageous to room together at a considerable savings in lodging costs, or other similar arrangements (e.g. taxis, rental cars), or in some cases just want to be aware of who else they might want to make contact with. Because of this interest, the Linguistics Department is quite willing to serve as a clearing house for information on which members plan to participate in which conferences. Send such information to: david_payne@sil.org

New International Linguistics Consultants

In recent months several new SIL International Linguistics Consultants have been appointed. We appreciate their willingness to serve the organization in this capacity and look forward to their counsel.

- Eugene Casad (Mexico Branch). Eugene has long been a leader and innovator in SIL in the area of language surveys and intelligibility issues. He is also one of SIL's leading linguists in the field of Cognitive Linguistics.

- Steve Marlett (Mexico Branch). Steve has contributed significantly in the field of Relational Grammar and current phonological theory. He headed the task force that planned SIL's 'ATFAR' initiative (Advanced Training in Field Areas). He also is Director of the North Dakota SIL school.

- Mike Maxwell (Academic Computing, previously Colombia Branch). In Colombia Mike was involved in academic production and linguistic consulting. More recently he has been involved in the development of computer tools for linguistics. Mike serves as the representative from the

Linguistics Department on a guidance team advising on the development of Acoustic Phonetics 'speech analysis' tools.

- Doris Payne (University of Oregon). Doris is on the linguistics faculty of the University of Oregon, and regularly teaches at the Oregon SIL. In these contexts as well as in doing linguistic research in South America and Africa, Doris has consulted SIL teams from various entities.
- Keith Snider (Cameroon Branch). Keith has contributed particularly in the area of current approaches to tone. He has consulted SIL teams in several entities of Africa and co-edited a major publication in that field.

LSA Summer Institute

In this issue of Notes on Linguistics is a report from Dave Tuggy on his participation at the 1995 Summer Institute of the Linguistic Society of America in Albuquerque. Dave and Dan Frantz were recipients of a full tuition fellowship sponsored jointly by SIL and the LSA. These fellowships are sponsored every two years, with the recipients being selected by the school directors of the US SIL Schools (NDSIL, ORSIL and TXSIL). Anyone interested (the next one is 1997) should contact one of the School Directors or the International Linguistics Coordinator.

—David Payne

Congratulations to the following SIL member recently completing the PhD degree in Linguistics:

Dr. Bill Staley (Papua New Guinea Branch)
University of Oregon 1995.

Sketch of Autosegmental Tonology

H. Andrew Black

1. Introduction. This provides a brief sketch of autosegmental tonology. The first section describes the basic concepts and the second section delineates tone rule parameters. An appendix includes some other research that has provided insight into tonal systems.

2. Basic Concepts.

2.1. Tones as autosegments. Traditionally, segments were viewed as fully specified feature matrices.

(1)

t	a	k	p	i
-syl	+syl	-syl	-syl	+syl
-son	+son	-son	-son	+son
-voi	+voi	-voi	-voi	+voi
-cont	+cont	-cont	-cont	+cont
+cor	-cor	-cor	-cor	-cor
-lab	-lab	-lab	+lab	-lab
…	…	…	…	…

Initially, tone was also considered to be a feature within such feature matrices. Since tone is not a property of most consonants and since tone rules needed to skip over intervening consonants, it seemed like such a representation for tone was not ideal. Tone was then viewed as an independent feature, an 'auto-segment' (Goldsmith 1976). Tones were placed on their own independent tier and so could be local to each other on that tier.

The tones are linked to the segmental tier via association lines as in (2). The lines are drawn from a tone to what is called a tone bearing unit (TBU) (typically shown as a vowel). There has been discussion as to whether the TBU is actually a syllable, mora, or vowel.

(2)

```
  H     L
  |     |
t a k p i    =    tákpi
```

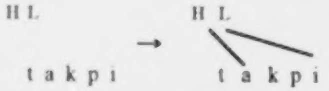
The following conventions and conditions have been posited as universals (Goldsmith 1976, Pulleyblank 1986):

(3) *Association Conventions*:
Map a sequence of tones onto a sequence of TBUs
(a) from left to right
(b) in a one-to-one relation.

Well-formedness Condition:
Association lines do not cross.

Example (4) illustrates the association conventions. The H tone is associated with the first TBU and the L is associated with the second.

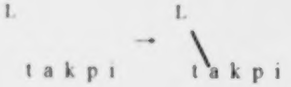
(4)



= tákpi

This works well when all tones are fully specified. If, however, one wishes to treat a particular tone value as unspecified (and later filled in by default), then the association conventions may no longer hold true. In (5), if H tones are the default, then the L will incorrectly be associated to the first TBU.

(5)

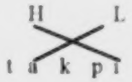


= *tàkpi

Rather, one must specify the precise TBU location for each tone listed in the lexical entry.

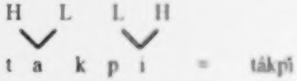
The Well-formedness Condition disallows representations such as the one in (6).

(6)



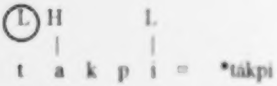
2.2. Register and contour tones and downstep. Register tones, of course, are easily represented by this scheme. Contour tones can also be represented by allowing for more than one tone to associate with a TBU. Thus a falling tone would have the representation as for the â and a rising tone would have the representation as for the ǐ in (7).

(7)



Tonal downstep can be viewed as a linked H tone preceded by a floating L tone (Pulleyblank 1986).

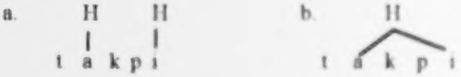
(8)



Such floating L tones may arise as a by-product of a delinking rule. They may remain floating, be deleted, or they may link to a neighboring TBU.

2.3. The OCP. When a word has two TBUs and both have the same tone (e.g. tákpí), there are two possible ways to represent the tones. Either there are two identical tones, each independently linked to their respective TBU (as in (9a)), or there is only one tone and this tone is linked to both of the TBUs (as in (9b)).

(9)



Kenstowicz (1994:322-323) shows that for Margi, the doubly linked representation is correct.

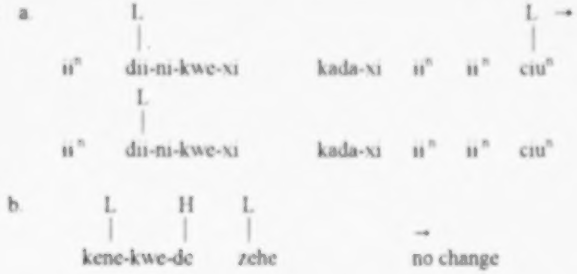
The Obligatory Contour Principle or OCP as it is commonly called accounts for selecting the multiple linked representation (it is originally due to Leben 1973):

(10) *The Obligatory Contour Principle**
Adjacent identical tones are banned from the lexical representation of a morpheme.

The OCP has remained very controversial. It appears that it has great value for some languages, capturing many good insights, but for other languages it fails to provide helpful insights—in fact, it may be quite problematic. For this reason, we may be wise to consider this a language-specific parameter.

2.4. Tone perturbations across word boundaries. In Peñoles Mixtec (Daly 1991), when there is a sequence of two L (low) tones which are separated only by M (mid) tones within a phonological phrase, the second L tone is deleted (11a). The second L tone is never deleted when there is an intervening H (high) tone (11b). (M tones are orthographically unmarked.)

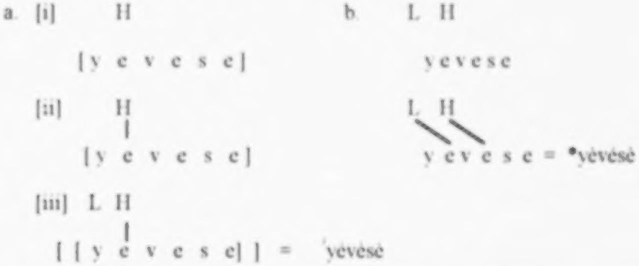
(11)


a.
L
L →
ii^n dii-ni-kwe-xi kada-xi ii^n ii^n ciu^n
L
ii^n dii-ni-kwe-xi kada-xi ii^n ii^n ciu^n
b.
L H L
kene-kwe-de zehe
→
no change

Such cross-word perturbations are not uncommon among tonal systems. Perhaps more common is the situation where the tone of one word surfaces on either a preceding or following word.

2.5. Tones and the morphological cycle. Some tone systems can best be understood when the tones are assigned in a cyclic manner. Pulleyblank (1986:68-69) cites an example from Tiv which shows the potential need for tones to be added according to the morphological cycle:

(12)


a. [i] H
[y e v e s e]
[ii] H
[y e v e s e]
[iii] L H
[[y e v e s e]] = ˋyèvèsè
b. L H
y e v e s e
L H
y e v e s e = *yèvésè

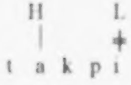
In (12a) the high tone of the root *yevese* 'flee' is linked via the universal association conventions first (ii) followed by the addition of the general past morpheme (iii) which consists solely of a L tone. A default rule assigns L tones to the remaining two TBUs. In (12b) there is no cycle, so both the L of the general past morpheme and the H of the root are associated via the Universal Association Conventions. The result is incorrect.

3. Tone Rules. This section provides a brief taxonomy of tone rules. It is based on the work of Archangeli & Pulleyblank (1993) and Hyman (1990) (which is based on early work of Archangeli and Pulleyblank) and on discussions in Pulleyblank (1986) and Kenstowicz (1994).

3.1. Operations. The following tone rule operations are employed:

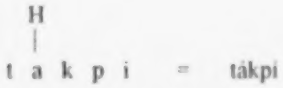
(13)	Associate	Associate the indicated tone: this means to insert the tone into the tone tier and to link that tone to its appropriate TBU.
	Delete	Delete the indicated tone. The tone is removed from the tone tier and all of its association lines are also erased.
	Delink	Delink the indicated tone from the indicated TBU: i.e. erase the association line from the tone to the TBU. The tone is not removed from the tone tier even if it is no longer associated with any TBUs. See (14) for an example.
	Insert	Insert the indicated tone into the tone tier. No association lines are drawn.
	Link	Link the indicated tone to its appropriate TBU. The tone is assumed to already be in the tone tier. Linking inserts an association line (or lines).
	Spread	Spread the indicated tone by drawing in the appropriate association lines. The direction, iteration, etc., of the spreading operation depends on the setting of the appropriate rule operation parameters (see section 3.2). Spreading assumes that the indicated tone is linked. See (15) for an example.
	Copy	Copy a tone or tone pattern (as in reduplication).

(14)



The L tone associated with the /i/ vowel is delinked. The L tone is left floating.

(15)



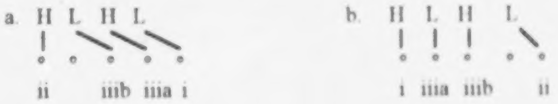
The H tone on the /a/ vowel is spread onto the /i/ vowel.

3.2. Operation Parameters. **Direction** is either towards the left (right-to-left) or towards the right (left-to-right). **Iteration** (which is not overtly represented in the graphic form of autosegmental rules as noted by Archangeli and Pulleyblank 1993):

(16)	noniteratively	The action is to apply non-iteratively; i.e. it applies once and only once.
	iteratively	The action is to apply iteratively; i.e., it applies to as many TBUs as possible. For example, if the action is to spread a H tone to the right non-cyclically, then the action attempts to spread the H tone to all the TBUs in the word to the right. If such an action were cyclic within morphemes, then the spreading would be to all TBUs within the morpheme.
	edge-in	The action is to apply the tones in an edge-in fashion. See Yip (1988) and Hewitt and Prince (1989). If direction is to the left, then (i) associate the rightmost tone to the right edge of the domain; (ii) associate the leftmost tone to the left edge of the domain (if possible); and (iii) associate all remaining unassociated tones right-to-left beginning to the immediate left of the first tone (17a). If direction is to the right, then (i) associate the leftmost tone to the left edge of the domain; (ii) associate the rightmost tone to the right edge of the domain (if possible); and (iii) associate all remaining unassociated tones left-to-right beginning to the immediate right of the first tone (17b).
	one-to-one	There is a one-to-one matching between tones in the list of tones and TBUs.

Example (17a) illustrates the edge-in iteration with a leftward bias. The final L tone is first associated to the rightmost TBU (the circles represent TBUs). Then the initial H tone is associated to the first TBU. Next the rightmost H is associated to the penultimate TBU, followed by the initial L being associated to the antepenultimate TBU.

(17)



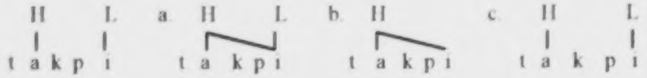
Example (17b) illustrates the edge-in iteration with a rightward bias. The initial H tone is first associated to the leftmost TBU. Then the final L tone is associated to the final TBU. Next, the initial L tone is associated to the second TBU, followed by the second H tone being associated to the third TBU.

Mode (also not overtly represented in the graphic form of autosegmental rules).

(18)	feature-adding	Feature-adding mode causes the tone of the action to be appended to the TBU. That is, if there is already a tone linked to the TBU, the new tone will also be linked to it (19a).
	feature-changing	Feature-changing mode causes any existing tones on the indicated TBU to be replaced by the new tone (19b).
	feature-filling	Feature-filling mode causes the new tone to *not* be linked if there are existing tones already on the TBU (19c).

Example (19) illustrates the various modes. The first diagram is the initial representation. Examples (19a,b,c) illustrate the results of spreading the initial H tone rightward using feature-adding mode, feature-changing mode, and feature-filling mode, respectively.

(19)

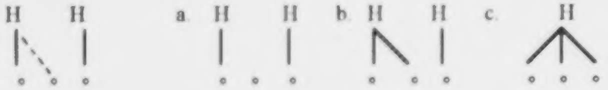


OCP (see (10); this also is not overtly represented in the graphic form of autosegmental rules).

(20)	optional OCP-blockage	An OCP violation will optionally block the action from applying.
	OCP-blockage	An OCP violation will block the action from applying.
	OCP-ignored	The OCP is ignored (does not apply at all).
	OCP-merger	When the application of an action will result in an OCP violation, merge the two offending tones into one.

Example (21) illustrates the various OCP modes. Given that a H tone is spreading to the right and the immediately following TBU also has a H tone, OCP-blockage will result in (21a), OCP-ignored will result in (21b), and OCP-merger will result in (21c).

(21)



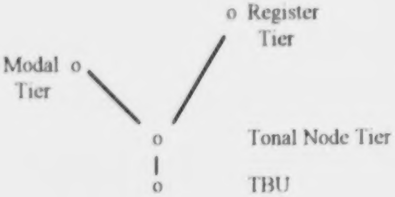
3.3. Rule Application. Rules can apply without respect to the cycle or they can apply cyclically and post-cyclically.

3.4. Conditions on Rules. One needs to be able to identify surrounding contexts in various ways and to identify exceptional forms.

4. Appendix. Other research has posited additional mechanisms for dealing insightfully with some of the complexities of tonal systems. Two are mentioned here.

4.1. Register Tier Theory. Some researchers (including Snider 1988, 1990) have posited that tones have an internal structure such as the one in (22).

(22)



The register tier typically has two values, **h** (which is one step higher than the preceding register) and **l** (which is one step lower than the preceding register). The primary or modal tier has the typical values of **H** and **L**.

This allows for the values given in the chart in (23).

(23) H^h = H

H^l = M

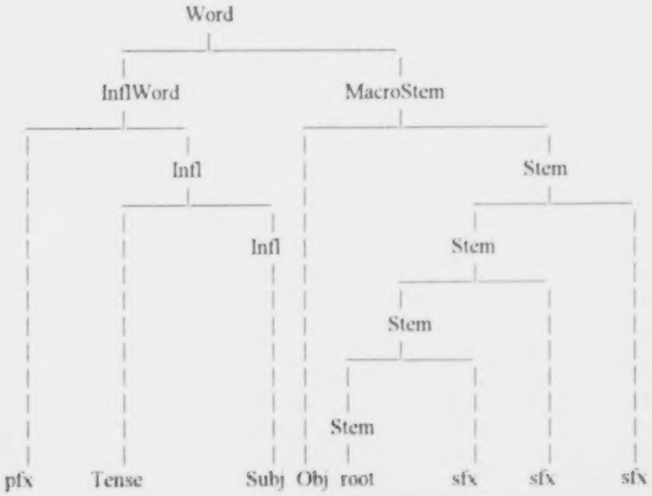
L^h = M

L^l = L

One can then have a spreading operation which spreads only the register tier which results in an **H** becoming **M**. Such spreading can also be used to model downstep, where an $\mathbf{H}^{l}$ models the downstep (see Snider 90:463 bottom). Similarly, an $\mathbf{L}^{h}$ models tonal upstep.

4.2. Boundary tones. Some research has also shown the need for boundary tones (see Pierrehumbert and Beckman 1988, C. Black 1994). For example, C. Black (1994) (building on work of Barrett-Keach 1986, Myers 1987, and Mutaka 1990) has argued for the following word structure for (at least some) Bantu verbs:

(24)



Many of the complex verb tone patterns in Kinande can be captured quite nicely by making use of the Infl, MacroStem and Stem domains. Certain tense markers assign two tones to the edges of either the Stem or the MacroStem domain. These tones are associated via the edge-in algorithm (see (16)). This coupled with the other regular tone rules operative in the language accounts for some of the almost dramatic tone pattern perturbations that occur with these tenses.

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System relationships in assessing dialect intelligibility

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1. Introduction. Determining the degree of intelligibility between dialects is crucial to many aspects of applied language work, including orthography design, language standardization and literacy work. The factors involved in estimating intelligibility are complex, probably too complex for any single testing instrument to account for in their entirety. The factors focused on in a testing or survey method should therefore be chosen with careful consideration of the intended applications for the intelligibility data. Some methods, for example, evaluate global intelligibility skills, focusing on listeners' overall comprehension of oral texts. Others focus on the structures of the dialects in question and evaluate linguistic differences which, it is believed, correlate with intelligibility.

Different methods provide different kinds of answers that are appropriate to different applications. We therefore do not claim that some approaches are 'right' and others 'wrong'. We do, however, believe that at present certain important issues are not addressed in commonly-accepted intelligibility evaluation methods. The point of this paper is to raise those issues and to propose the outlines of an approach to intelligibility evaluation that addresses them.

Our approach is basically phonostatistic in nature. We do not, of course, deny the significance of lexical, syntactic and pragmatic differences in inter-dialect intelligibility, nor do we minimize the value of testing global comprehension. For many purposes, however, we maintain that phonological differences in the language systems under consideration provide crucial keys to intelligibility unavailable through other approaches. Phonostatistic methods also lend themselves to simple and efficient data collection procedures, which can be of great practical importance where many dialect test points are involved and resources are limited. (Simons 1977 gives further practical arguments in favor of phonostatistic approaches in general for synchronic research.)

2. Components of intelligibility. When listeners are first exposed to an unfamiliar dialect we assume that they immediately begin to formulate hypotheses about how the sounds they hear relate to the system of sounds in their own dialect. Their initial hypotheses may be correct or they may be off the mark by varying degrees, depending upon the nature of the relationship between the systems of the two dialects. The disparity between the actual patterns of correspondence and the patterns initially hypothesized by listeners results in what we call the degree of 'initial intelligibility'. Initial intelligibility is thus the degree of intelligibility existing for listeners upon first hearing another dialect spoken.

Listeners generally do not stop there, however. If their first hypotheses do not provide them with the basis for effective communication, we assume that they immediately try alternative hypotheses. In some pairs of dialects, the relationship between the phonological systems may hold clues that help listeners progress from the incorrect set of hypotheses to the correct ones. In other system relationships, however, the facts may tend to reinforce the incorrect hypotheses or at least obscure the correct ones. The extent to which the relationship between the two sound systems promotes or impedes the transition from the initial incorrect analysis to the correct analysis is what we call 'inherent learnability'.

The concept of 'learnability' should not be confused with the language learning implied in bilingualism or bi-dialectalism. Inherent learnability, like inherent intelligibility, is a property of languages (or more precisely, a property of the relationship between the phonological systems of two dialects). It is not, in contrast to bilingualism, a sociological property of individuals in speech communities. We take inherent learnability to be the most important aspect of intelligibility. For purposes ranging from everyday communication to high-level language planning, the key issue is not simply the initial degree of intelligibility, but rather how quickly and easily listeners can adjust to or 'catch on to' the other dialect. If it is easy for listeners to adjust to the other dialect, then for practical purposes intelligibility will be high even if at first hearing initial intelligibility is rather low. On the other hand, if it is very difficult for listeners to adjust to the other dialect, intelligibility may remain at the initial level and listeners may have to study the dialect as they would a foreign language in order to achieve effective communication.

We recognize two aspects to this notion of inherent learnability. One concerns the predicted difficulty listeners will have in progressing from initial spurious hypotheses concerning sound correspondences to the correct set of correspondences. We suggest that this 'difficulty' is reflected by the number of likely competing hypotheses that listeners are faced with. This we call the 'Hypothesis Revision Task' of the listener. The other aspect of inherent learnability has to do with whether or not an actual correspondence can be expressed as an exceptionless generalization from the point of view of the listener, such as, 'Their [b] always corresponds to our /p/.' Those correspondences that permit exceptionless generalizations we call 'congruent' correspondences; those that do not we refer to as 'incongruent' correspondences. A dialect may be more or less congruent with another depending on the nature and number of incongruent correspondences existing between it and the other dialect. The degree of congruity has been shown (Milliken 1988) to correlate well with independent tests of global intelligibility.

An important characteristic of inherent intelligibility, both in terms of initial intelligibility and learnability, is that it is directional. That is to say, dialect A may be more intelligible to listeners of dialect B than dialect B is to listeners of dialect A. It is this property of inherent intelligibility that makes certain dialects in a group more suitable as centers of communication than others, or, to take a specific application, it makes certain dialects more suitable than others as the basis for a general-use orthography.

Note, however, that commonly-used phonostatistic or lexicostatistic survey methods neither evaluate learnability nor indicate directionality when used to estimate inter-dialect intelligibility. Typically, phonostatistic methods simply tally differences found in word lists, whether in terms of phonological features or the phonemes themselves, while lexicostatistic methods count percentages of cognate words between lists. There is generally one score for the pair of dialects under consideration, giving a false impression of symmetrical intelligibility, and the systemic significance of the various differences are ignored. Although the Recorded Text Test method (Casad 1974) does provide separate scores for both dialects in each pair of dialect being tested, and so indicates directionality, it is nevertheless impossible to know if score differences should be attributed to initial intelligibility or to learnability. It furthermore gives no indication of the degree of learnability and congruity between the dialects.

We thus feel that a new means for evaluating inter-dialect intelligibility is needed. The key to the problem lies in determining the process listeners go through in formulating hypotheses about the relationships between the phonological system of the unfamiliar dialect and their own.

3. Intelligibility as system-dependent. Variation is, of course, a fundamental fact of human language, both in the speech of a community and in the speech of an individual. Despite this ever-present variability, effective communication is still possible if listeners can correctly identify the sounds they hear with the sounds of the idealized (i.e., 'emic') system they have internalized. A general principle of psycholinguistics is that for a given phonological system there is a certain range of tolerated variation within which listeners will identify a sound with a given phoneme. (See, for example, Ganong 1980 for discussion.) If the threshold of tolerated variation is crossed so that it lies within the range of another phoneme, then the sound will be identified with that other phoneme instead. The range of tolerated variation for a given phoneme depends on what other phonemes there are in the system. In vowel systems, for example, greater variation is tolerated in classic three-vowel systems than in more complex vowel systems such as that of English. There is typically more phonetic distance between the vowels in the simpler system in accord with the so-called theory of sufficient perceptual separation (Ladefoged 1975), and so relatively large variations are possible without encroaching on the range of a different phoneme. This means that it is impossible to make universal statements concerning the effects of specific phonetic differences; the significance of phonetic variation is system-dependent.

Moreover, the identification of a sound with a particular phoneme is categorical. That is, as long as the sound is within the tolerated range of the phoneme, it is identified with that phoneme, regardless of the actual nature or degree of phonetic difference. (There could, perhaps, be cases where a sound lies exactly on the threshold between the ranges of two phonemes in which case it might be considered an indeterminate sound. Even if such 'fence-walking' situations do arise, however, we suggest that the fence is a very narrow one.) This means that phonetic differences per se are not significant with respect to intelligibility; they are only of interest if they place a sound across the threshold of tolerated variation and into the range of a different phoneme.

The 'Interpretation Principle' summarizes the above claims as they relate to the reaction of members of one dialect to the sounds of another dialect.

> **Interpretation principle:** Members of one dialect will interpret a sound in another dialect as corresponding to the most similar eligible phoneme in their own dialect, in the absence of sufficient contextual clues to otherwise bias their decision.

By 'eligible phoneme' we mean one which has not already been tried and rejected as a candidate for correspondence. 'Contextual clues' refers both to areas such as pragmatics and also to the morphological or syntactic context. These aspects of communication are obviously involved in intelligibility no less than phonology is, but in order to make survey methods practical we in fact usually assume they are absent. This is one reason why testing methods of a more global nature such as the Recorded Text Test are valuable.

A caveat is that the exact size of the tolerated range of variation for a given sound with respect to a given phonological system is an empirical question. Lacking detailed psycholinguistic experimentation into how listeners categorize sounds with respect to all possible phonological systems, we can only recommend careful common sense when making predictions based on the Interpretation Principle. In general it is probably safe to assume that the sound in the listeners' system that is most similar to some phone is the sound that shares the most phonological features that are distinctive in the listeners' sound system.

A corollary of the Interpretation Principle is that listeners will tend to ignore sound distinctions that exist in the unfamiliar dialect but do not exist in their own. For example, listeners from a dialect with no vowel length distinction are predicted not to distinguish between the long and short vowels that might occur in another dialect. The Interpretation Principle predicts that they would interpret both long [aː] and short [a], for instance, as corresponding to their own undifferentiated vowel /a/.

Another assumption we make concerning the way listeners react to an unfamiliar dialect is that they attempt to make hypotheses that are as general as possible. For example, listeners who hypothesize that an aspirated /$\mathbf{p^h}$/ in the unfamiliar dialect corresponds to their own /**p**/ will tend to generalize the hypothesis to include all aspirated stops they hear. Thus the discovery of a /$\mathbf{p^h}$/—/**p**/ correspondence will therefore automatically result in hypothesized /$\mathbf{t^h}$/—/**t**/ and /$\mathbf{k^h}$/—/**k**/ correspondences, assuming those sounds occur in the dialects in question. If the /$\mathbf{p^h}$/—/**p**/ correspondence proves valid and the others do not, listeners will have to narrow their hypotheses at a cost to inherent learnability.

4. A new approach to phonostatistics. We propose to evaluate phonostatistic word list data by first mapping the actual patterns of correspondences between the dialects, and then comparing this with the mappings that we predict listeners make when hearing an unfamiliar dialect. The number of correspondences that differ between the actual and listener assumed system indicates the inherent degree of initial impairment to intelligibility existing between the two dialects. We then calculate the degree of inherent learnability for each dialect with respect to the other by estimating the difficulty involved for listeners in correcting the initial incorrect correspondence mappings and discovering the correct ones. Finally, we determine dialect congruity by identifying certain actual correspondence patterns and evaluating them for each dialect according to the degree to which they render the system of that dialect opaque to listeners from the other dialect. All results are then weighted according to the frequency with which each correspondence type occurs in the word list as a means of approximating text frequency.

4.1 Initial listener hypotheses. When members of one dialect hear another dialect, they make hypotheses based on the Interpretation Principle about the relationships between the sounds of the two systems. If the systems are identical, then we expect the initial hypotheses to be correct. If the phonological systems differ to some degree, the differences may affect the initial hypotheses of the listeners, and so may affect the degree of initial intelligibility.

Some differences do not lead listeners into making incorrect initial hypotheses, and so do not significantly affect intelligibility. This is the case when there has been some phonetic shift, but not to a degree that causes sounds to cross the threshold into the phonetic domain of a different phoneme in the other dialect. Consider, for example, the correspondences found in the South Laibin and Nandan dialects of the Zhuang language of Guangxi, China shown in figure 1. (Zhuang data are from Wei and Qin (1984) and from our own field notes.)

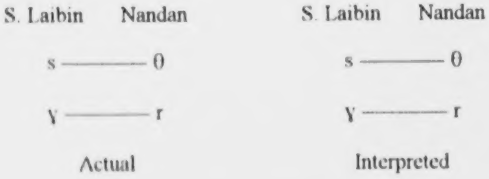

Figure 1. Phonetic shift

On the left of figure 1 is an actual correspondence set where the phonetic values of the fricatives have shifted slightly, but do not overlap with different phonemes. The South Laibin sound phonetically most similar to

/s/ is in Nandan /θ/ and vice-versa. The same is also true for /ɣ/ and /r/ (neither dialect has a /g/ or other likely candidates). The listeners in both dialects are thus expected to hypothesize the correct correspondences, and so no significant loss of intelligibility is expected.

Consider next the set of correspondences between Hechi and Longsheng Zhuang shown in figure 2.

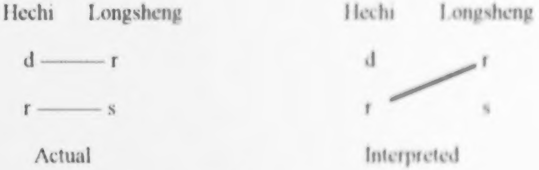

Figure 2. Phonemic overlap

In figure 2 the sound in Longsheng that actually corresponds to Hechi's /d/ is for all purposes phonetically identical to Hechi's /r/. The interpretation principle predicts that listeners from both dialects initially will hypothesize an incorrect /r/—/r/ correspondence. This kind of situation obviously lessens intelligibility since words would tend to be misinterpreted. For example, we might expect Hechi listeners to interpret Longsheng /riŋ/ 'red' as 'city', which is pronounced /riŋ/ in Hechi, and not immediately identify it with Hechi /diŋ/ 'red'.

Note that it is not important that the /r/'s in the two dialects be exactly the same phonetically as they are in this example. Phonetic shift as discussed above is tolerated by listeners in setting up spurious correspondences too. The important point is that through sound changes the threshold into '/r/-ness' has been crossed (in one of the dialects) and so the sounds are categorized as the same by listeners.

A similar case, which we include under phonemic overlap, is one in which a corresponding sound in one dialect has been lost or an epenthetic sound has been added in one of the dialects. In the Wenshan dialect of Zhuang, for example, syllable-final stops have been lost historically so that the word /ma^{31}/ 'socks' corresponds to Wuming dialect's /mat^{33}/, but it is phonetically identical to Wuming /ma^{31}/ 'come back'.

In some other cases it is possible that a phoneme in one dialect does not quite overlap a different phoneme in another dialect, but instead lies roughly half-way between two phonemes in the other dialect. We call this an 'indeterminate' correspondence and illustrate it in figure 3 with a subset of the tonal correspondences between Xincheng and Huanjiang dialects.

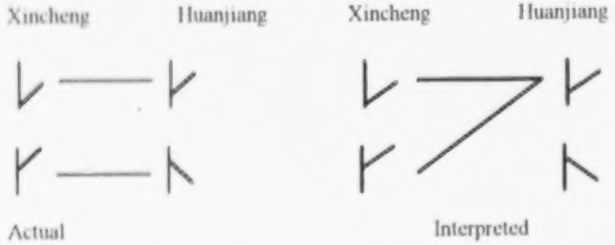

Figure 3. Indeterminate correspondence

Figure 3 shows that Xincheng dialect has two rising tones: low-rising and high-rising. Huanjiang dialect, however, has only one rising tone, phonetically in the middle of the register. In this situation we claim that members of Huanjiang dialect listening to Xincheng speech would not be attuned to the register contrast for rising tones since their own dialect does not have such a distinction. We expect them to group the two Xincheng rising tones together with their single mid-rising tone.

We are somewhat less certain in this case of our predictions with respect to members of Xincheng dialect listening to Huanjiang speakers. It may be that Xincheng listeners associate the Huanjiang rising tone sometimes with their own low-rising tone and sometimes with their high-rising tone, or perhaps different individuals tend to favor one correspondence over the other. In any case, we assume that Xincheng listeners are also liable to make incorrect initial hypotheses at least some of the time when the phonological systems are related in this way.

One final possibility that occurs to us is that a sound in one dialect is sufficiently different from any sounds in the other dialect that listeners do not hypothesize any correspondence with it at all. We call this an 'anomalous' correspondence. This situation is probably rare between dialects that are related closely enough to be considered for intelligibility evaluation. It is fairly common, however, in correspondences with Ø (null), as illustrated in figure 4.

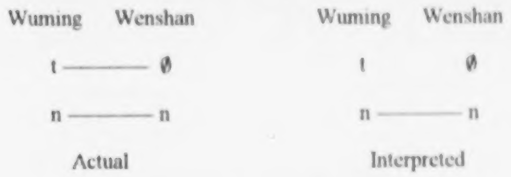

Figure 4. Anomalous correspondence

This is the same case mentioned above where Wenshan Zhuang lacks syllable-final stops. Now, however, we are considering the situation from the point of view of Wenshan listeners confronted with Wuming speech. (Note that the listed correspondences are only for syllable-final position.) When Wenshan listeners hear Wuming words ending in /p/, /t/ or /k/ we claim the tendency is for them to assume the words are non-cognate and to hypothesize no correspondence.

To estimate the degree of initial intelligibility, the patterns holding between the dialects must be categorized according to these types and then quantified in some way to yield a useful score. At this point we are not prepared to suggest an actual scoring procedure, other than to say that phonetic shifts would not count against intelligibility. As our research in this area develops, however, we hope to be able to provide a principled method for scoring.

4.2 The Hypothesis Revision Task. After formulating initial hypotheses concerning sound correspondences, listeners may quickly realize that some of those hypotheses are incorrect. We assume listeners then continually formulate new hypotheses until either they discover the correct correspondence patterns, or they give up and conclude that the words which exemplify the 'undiscoverable' true sound correspondences are non-cognate.

To take a concrete example, consider again the phonemic overlap pattern existing between Hechi and Longsheng dialects, shown in figure 5.

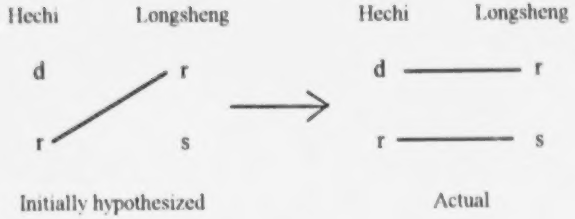

Figure 5. Hypothesis revision

For the sake of discussion let us adopt the point of view of Hechi listeners attempting to interpret Longsheng /r/. The initial /r/—/r/ hypotheses fails to provide a basis for comprehension, so Hechi listeners must consider what other sound in their dialect could correspond to Longsheng /r/. According to the Interpretation Principle they would look to the next most phonetically similar sound in their dialect. There is, it turns out, an /l/ in Hechi. Under the reasonable assumption that /l/ is more similar to /r/ than is /d/, the relationship between the systems of the two dialects would lead Hechi listeners to make a second incorrect hypothesis. Upon discovering that an /l/—/r/ correspondence is unsatisfactory, Hechi listeners might then finally hit upon the correct /d/—/r/ correspondence. (Notice therefore that hypothesis revision is driven by the need to make sense of the sounds **heard**. It is not, we claim, driven by a desire to find correspondences for the sounds in one's own dialect. Thus the existence of a sound in the unfamiliar dialect that is not in the listener's dialect would spur listeners to formulate new hypotheses. On the other hand, the existence of a sound in the listeners dialect that is not in the unfamiliar dialect would probably remain unnoticed by listeners. In other words, listeners might think, 'What on earth is **that** sound I just heard?' but they would not be likely to think, 'Say, I don't believe I've heard anything matching my /d/ yet!')

We propose that inherent learnability can, in part, be quantified in terms of the number of incorrect hypotheses listeners can be expected to make in the course of attempting to construct the actual patterns of sound correspondence. Again, we defer until a later date the details of a scoring scheme.

Consider, however, that there are system factors other than just phonetic similarity that will affect the hypothesis revisions listeners make. First, we suggest that where the initial incorrect hypothesis involves phonetically identical sounds, listeners will be relatively reluctant to abandon the hypothesis. Thus hypotheses involving patterns of indeterminacy will be easier to reject than those involving patterns of exact overlap.

Second, there may be a blocking effect that would make the hypothesizing of a particular correspondence less likely. If, for example, Hechi listeners have initially hypothesized an /l/—/l/ correspondence (whether correctly so or not), the identification of Longsheng /l/ with their own /l/ would tend to block the identification of Longsheng /r/ with their own /l/. In the present example, this blocking effect would probably enhance learnability since it would (presumably) lead listeners more quickly to consider the /d/—/r/ correspondence possibility. If, on the other hand, Hechi listeners have hypothesized a /d/—/d/ correspondence in addition to the correspondences shown above, the correct /d/—/r/ correspondence would tend to be blocked.

One factor which we do not believe affects listener hypothesis formulation is the conditioning of variants in the unfamiliar dialect. For example, the Yishan Zhuang syllable initial /hj/ corresponds to Donglan dialect [j] in syllables having tone category 1, 3, 5 or 7, but corresponds to Donglan [l] in syllables having tone category 2, 4, 6 or 8. These facts are displayed in figure 6.

	Yishan	Donglan
Tones 1, 3, 5, 7:	hj	j
Tones 2, 4, 6, 8:	hj	l

Figure 6. Conditioned dialect variants

In Donglan dialect initial [l] and [j] can be viewed as conditioned variants of the same phoneme. We maintain, however, that this information is not available to Yishan listeners to help them in hypothesizing correspondences since it involves an analysis of facts that are strictly internal to the Donglan system. Any analysis of the internal system of another dialect we maintain requires learning in the sense of second language acquisition and so does not enter into inherent learnability. Thus the complementation in Donglan will not, for example, lessen the likelihood of Yishan listeners incorrectly associating instances of Donglan [l] with Yishan /l/, nor will it make it easier for Yishan listeners to realize that Donglan [l] corresponds to Yishan /hj/.

4.3 Congruence. Whereas initial listener hypotheses have to do with the correspondences that listeners assume, and the revision task has to do with listeners trying to discover the actual correspondences, congruence is a property of the actual correspondences themselves. A correspondence is congruent if and only if the listeners can make a generalization about the sound in their system and the sound in the words they hear. Even if listeners are able to discover these actual correspondences, knowing that the incongruent correspondence exists will still not help them understand the words they hear. Incongruent correspondences are unlearnable in the sense of inherent learnability.

Incongruent correspondences arise in patterns involving one-to-many relationships. Consider, for example, the correspondences between the systems of Rongshui (also called 'Damiaoshan') and Yongfu Zhuang shown in figure 7.

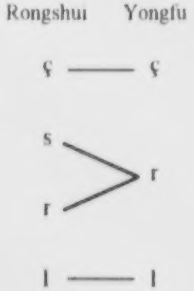

Figure 7. Merger pattern

The Rongshui sounds /s/ and /r/ have collapsed together historically in Yongfu so that only /r/ now occurs in that dialect. We call such one-to-many or many-to-one patterns 'mergers'. Of course historically such patterns can arise as splits as well as mergers, but synchronically the distinction is irrelevant. Our choice here of the single term 'merger' thus should not be interpreted as having historical significance.

The existence of mergers between dialects affects the ability of listeners to hypothesize exceptionless generalizations concerning correspondence relationships. Initially we expect Rongshui listeners to correctly hypothesize the /r/—/r/ correspondence. Although we do not predict they would initially hypothesize the /s/—/r/ correspondence, they might discover it before long (probably after trying an /l/—/r/ correspondence). The problem, however, is that there is no exceptionless generalization available to Rongshui listeners in deciding whether any given instance of Yongfu /r/ corresponds to Rongshui /r/ or Rongshui /s/. This means that Rongshui listeners must analyze every Yongfu word they hear with /r/, depending on context to guess it's proper identity. For complete facility in comprehending Yongfu dialect, Rongshui listeners must memorize which Yongfu '/r/-words' correspond to their own '/r/-words', and which correspond to their '/s/-words'. Such memorization, however, falls under second language acquisition, and so this aspect of the relationship is unlearnable in the sense of inherent learnability.

Note that members of Yongfu dialect listening to Rongshui speakers do not have the same problem. They only need hypothesize the correct correspondences, and they will then find that all instances of Rongshui /r/ and all instances of Rongshui /s/ correspond to their own /r/. Thus mergers seriously affect intelligibility for the dialect on the 'preserving' or 'many' side of the merge but not for the dialect on the 'neutralizing' or 'one' side. In this case, then, the correspondences involving /r/ and /s/ are incongruent only for the Rongshui listeners.

Thus for any two dialects A and B, the more instances there are of mergers where dialect A is on the 'many' side of the one-to-many pattern, the more incongruent A is with B. The effect on intelligibility will depend on the degree of incongruity, the lexical load of the sounds and the frequency with which the relevant sounds tend to occur in natural speech. Once again, we defer until later the formulation of an adequate scoring scheme.

Often in language data more complicated correspondence patterns arise. For example, in the correspondences between Long'an and Wuming Zhuang shown in figure 8 there are mergers in both directions that share a correspondence set.

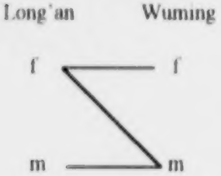

Figure 8. Overlapping mergers

There are two mergers embedded in this pattern: Long'an /f/ and /m/ merge into Wuming /m/, and Wuming /f/ and /m/ merge into Long'an /f/. These two mergers share the correspondence set Long'an /f/—Wuming /m/, and so this is an overlapping merger pattern.

Since such patterns involve mergers, some of the correspondences are, of course, incongruent, and so listeners will be unable to formulate exceptionless generalizations concerning the correspondence relationships. Here, for example, the /f/—/m/ correspondence is incongruent in both directions.

There is, however, another problem for intelligibility with overlapping mergers in addition to the lack of exceptionless generalizations. As listeners revise their hypotheses, the fact that they have made the associations of /f/ with /f/, /m/ with /m/ brings the blocking effect into play. When, for instance, Long'an listeners hear Wuming /m/, they would tend not to consider the possibility of its corresponding to Long'an /f/. For one thing, it is phonetically identical to their own /m/ and so there would be resistance to breaking the initially hypothesized /m/—/m/ correspondence. For another, they will be aware of the existence of /f/ in Wuming. Their assumption, we predict, will be that since Wuming speakers clearly have an /f/, then if they mean the equivalent of Long'an /f/ they would use it. Thus the existence of /f/ in both dialects would tend to block a Long'an interpretation of Wuming /m/ as corresponding to Long'an /f/. Overlapping mergers therefore involve two cases of blocking in addition to lacking exceptionless generalizations, and so we claim that it is very difficult, if not impossible, for listeners to come up with the correct correspondences. Note that Agard (1975) proposed that any sound change which resulted in just this pattern of overlapping mergers is the defining event of two related dialects splitting into separate languages.

For a suggestion of just how complex the correspondence patterns can in fact be, consider the more complete pattern of Long'an—Wuming overlapping merger correspondences shown in figure 9.

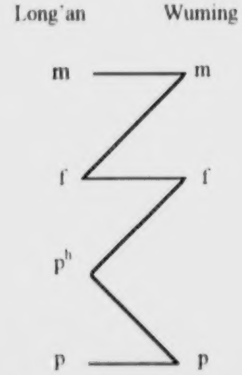

Figure 9. Complex overlapping pattern

In figure 9 the /f/—/m/, /p^h/—/f/ and /p^h/—/p/ correspondences are overlapping 'legs' of more than one merger.

Part of the score for inherent learnability in the intelligibility profile will include how many of the actual correspondences the listeners are probably unable to come up with even after they revise their initial hypotheses. Again, in the actual formulation of the scoring scheme, the lexical load of the sounds and the frequency with which these words tend to occur in natural speech should be taken into account.

5. Summary and conclusion. We have chosen to pursue a phonostatistic approach to inter-dialect intelligibility estimation since such surveys can be conducted relatively quickly and easily. The approach to phonostatistics proposed here is based on systematic relationships that can be gleaned from analysis of word lists collected on one trip to the areas to be studied, or even from previously published data that describe the sound systems and the correspondences between dialects. Word list or text frequency data would still be needed eventually, but even in areas with limited access considerable progress could be made in understanding the dialect situation if this method were used in analyzing the data that is already available.

We consider our phonostatistic approach to be more useful than lexicostatistic ones, and even more useful than Recorded Text Test intelligibility evaluation in providing data for language project planning, since differences in phonological systems are directly relevant to questions of orthography design and spelling standardization. To put things into concrete terms, incongruent correspondences and cases where listeners cannot come up with the correct correspondences can be viewed as the keys to deciding on the limits of effective language standardization. It is precisely the words that exemplify these correspondences which will cause problems in the writing system. Only if these words are not standardized, but rather are spelled differently in the different areas, would it be relatively easy for people from all the areas to learn to use the writing system. In addition, the directionality and congruency factors reflected in our proposed intelligibility profiles can be used in language planning to decide which places are likely centers of communication in the sense that people from a wide area would be likely to understand that speech, and how many centers would be needed for any given area. We expect that the numbers from our intelligibility profiles could serve as input for an optimal communication network analysis (Grimes 1974), just as other intelligibility survey data does now.

The discussion in this paper covers only what we consider to be the basic issues involved in estimating inter-dialect intelligibility, and gives only a rough outline of a proposal for an actual survey procedure. We hope that the points we have raised will generate increased interest and discussion in the area of improving methods for estimating intelligibility, and that subsequent developments in our own research might provide practical solutions to the complex problems involved in planning language programs.

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Second International Conference of the International Association of Literary Semantics—1997
will take place at the University of Freiburg from Monday, 1 September to Thursday, 4 September 1997. Those interested should contact Professor Monika Fludernik, English Department, University of Freiburg, D-79085, Germany.

Reports

Report of the International Conference on New Guinea Languages and Linguistics

Les Bruce
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The conference was held at the University of Cenderawasih, Abepura, Irian Jaya, Indonesia, from 28 August to 2 September, 1995. It was co-sponsored by the University of Cenderawasih and the University of Papua New Guinea.

The theme of the conference was 'Contributions of language and linguistic studies to science and the impact on the development of the people of Irian Jaya and Papua New Guinea'. There were more than 100 participants—from Indonesia, Australia, Canada, The Netherlands, New Zealand, Papua New Guinea, and the United States.

The keynote speakers of the conference and their papers given were:

> Dr. Kenneth Pike, President Emeritus of SIL (1) 'Language helps us understand the relation of people to people, and people to nation', (2) 'Summary of Pike and Simons' approach to matrix historical-reconstruction'.
>
> Professor William Foley, Chairman of the Department of Linguistics, Sydney University, 'Genre: Poetics, ritual language and verbal art'.
>
> Dr. Bambang Kaswanti Purwo, President of the Linguistic Society of Indonesia, 'Irian languages: A call for native speakers to become linguists'.
>
> Mr. Apoi Yarapea, President of the Linguistic Society of Papua New Guinea, 'Evidentials in the Kewapi language of Papua New guinea'.
>
> Dr. Thomas Perry, Department of Linguistics, Simon Fraser University, Vancouver, Canada, 'Local languages, development, and the role of post secondary education: An outlook for Irian Jaya'.

One of the features of the conference was the promotion of native speakers doing linguistic research on their own mother tongue. There were at least eight papers given on language research conducted by native speakers of the languages studied.

There were several contributions by SIL members. These included papers by Ken Pike, Evelyn Pike, Ron Hesse, Duane Clouse, Les Bruce, Dick Kroneman, and Kay Ringenburg. Ron's paper on Imyan Tehit phonology and syllable structure and Duane's paper on historical-comparative reconstruction among the Lake Plains languages were received with much interest and discussion. My paper was entitled 'Syntactic paradigm and semantic roles in Alamblak, PNG'.

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Report on the 4th International Cognitive Linguistics Conference

Albuquerque, New Mexico—16-21 July, 1995

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[Editor's Note: This report adds information to a report on the same conference printed in *NOLG* 71.21-23.]

Cognitive linguistics (CL) emerged in the late seventies and saw the publication of its foundational works in the eighties. In 1989 its practitioners became a cohesive community of scholarship at the first conference of the International Cognitive Linguistics Association (ICLA) held in Duisberg, Germany. The ICLA was formed there, as was the journal Cognitive Linguistics and the Cognitive Linguistics Research monograph series (Langacker 1991: ix). The theoretical framework and methods of inquiry of CL have been established and continue to develop and come under scrutiny, with growing interest. Most of the major contributors to the field were at this conference.

This conference, the fourth of its kind, attracted scholars from all over the world, most notably from America, Europe, and Asia. The papers covered a wide range of topics, including computational problem solving, sign languages, acquisition, pragmatics, humor, visual imagery, and emotions. Following are some of the categories to which papers belonged, with a few representative papers described.

Functional. While cognitive and functional approaches to linguistics have tended to be friendly with each other, their mutual reinforcement and influence is becoming more acknowledged. Joan Bybee, in an introductory address, reiterated the subsumption of both cognitive and functional linguistics under the rubric 'usage-based' approaches to grammar. The relationship between these usage-based approaches was seen most clearly in two of the papers on grammaticalization, perhaps because some of those who have worked in grammaticalization (especially Bernd Heine and Soteria Svorou) have emphasized its relationship to CL.

Svorou, in 'Iconicity and the grammaticalization of locative constructions,' hypothesized that grammatical saliency decreases in locative constructions along a continuum of IN/ON > TOP/BOTTOM > FRONT/BACK regions. Semantic distinctions, frequency of use, and quantity of forms are also presumed to decrease along the continuum. She cited work that shows that vertical axis constructions grammaticalize to a higher degree than frontal axis ones, i.e. there are more distinctions in TOP/BOTTOM region than FRONT/BACK region. Svorou tested and subsequently confirmed her hypothesis with data from 26 languages.

Bernd Heine and Tania Kuteva proposed a new universal grammatical category, the 'proximative', in their paper of the same name. It has the meaning of 'be on the verge of Verb-ing' and functions as an aspectual category. They traced its history from volitional/purposive and goal-oriented motion verbs which grammaticalized into an aspectual category, and described the motivation for the various paths of grammaticalization and extensions of meaning it exhibits. Like Svorou, they also have confirmed their findings in a variety of languages to support its status as a universal category.

Language problems in the CL framework. People involved in language fieldwork may have appreciated the large number of both language-specific and cross-linguistic problems that were dealt with in a CL framework. The languages and language families were ASL, Bantu, Danish, English, Germanic, Japanese, Kapampangan, Romance, and Wolof, among others, with focus on such cross-linguistic problems as word order and the behavior of grammatical categories.

Cognitive underpinnings. Of interest to cognitive linguists is the working of the mind/brain in general, and more specifically, how it processes language; thus, the findings of neurology and cognitive psychology are important to the field. Some researchers reported on the results of language processing experiments, and then used these results to present or confirm hypotheses about more general cognitive processes. Outstanding among these was neurologist Antonio Damasio's plenary paper, 'Concepts, words, and neural architecture'. He discussed convergence zones, a mental apparatus that acts like networked switching stations in the reconstruction of mental states. While he maintains that their structure is real, he allows that the way it operates is yet unknown. Some of his general assumptions of interest were:

- Mind is organism-based, as opposed to organ-based.
- Emotion is part of rational thought, not a hindrance.
- Different neural systems govern the retrieval of concepts and the retrieval of words.
- Some systems are preferentially involved with the reconstruction of particular things like words.

Phonology. Phonology has not been a strong part of CL, and the single presentation on phonology was testimony to that. Geoff Nathan's talk on 'Conflicting desires in cognitive phonology' used a metaphorical Optimality Theory framework to solve problems traditionally handled by rule ordering. His approach handled them as conflicts between requirements that words be easy to say and that they retain their contrastive identity, i.e. between articulatory lenition and morphological faithfulness constraints. Also interesting (if not novel) was his interpretation of the status of the phoneme as a mental category exhibiting prototype effects: a central meaning with less central extended meanings, motivated by image schema transformations. Prototype categorization has been a central assumption of CL, and this interpretation was in keeping with the premium Nathan placed on a 'cognitively realistic theory'.

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Mexico Branch Popular Grammar Workshop

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A workshop on the preparation of popular grammars was held in Mitla, Oaxaca, Mexico, from 18 September to 6 October 1995. This workshop was limited to languages in the Otomanguean stock, which share a number of phonological and syntactic features not found in other Mexican languages. It was open to outside participants, as well as to SIL members and their language associates, and all sessions were held in Spanish. The plan for this workshop was to look at principles for writing a popular grammar and have participants begin to draft one.

The Mexico Branch has been criticized from time to time for concentrating its linguistic production on technical works in English (our bilingual dictionaries are a notable exception to this). This criticism has increased lately, and much of it comes from bilingual native speakers, who feel that we are denying them access to the results of our work on their languages. This workshop was an attempt to balance our linguistic production by aiming at short grammars written in Spanish.

The workshop had two mottoes. The first was: 'The more you explain it, the more I don't understand it'. And the second was: 'Plagiarism promotes progress'.

The first motto helped the participants remember the main audience of a popular grammar. It is written mainly for nonlinguists, and it therefore avoids technical terms, detailed analysis, and abstractions. Explanations are brief, preferably one or two sentences, and are reinforced by well-chosen examples that follow immediately. For example, rather than describing complex morphophonemic rules, participants were encouraged to present full paradigms and to mention some features the reader should note.

The second motto (plagiarism promotes progress) gave workshop participants a method to follow. The Mexico Branch has already published several popular grammars of Otomanguean languages, and printouts of others in preparation were available at the workshop. Participants read at least two of these grammars, looking for similarities and differences between these grammars and the language they were describing, and also noting the way the grammars were organized. (In other words, they were using these grammars somewhat like a shell.)

As they read, participants were asked to list all the features of their language that came to mind, either because they were like the language they were reading about or because they were different. The next task was to organize the list into a tentative outline. By the end of a week, most participants had an outline and were starting to write.

Participants were also encouraged to incorporate the familiar pedagogical principles of working from the known to the unknown, and from the concrete to the abstract, in the way they presented information. For example, the chapter that describes the sound system is entitled 'The alphabet', and it presents letters and the way they are pronounced, rather than sounds and the way they are written. There are two major reasons for this. One is that letters are more concrete and cognitively salient than phonological units. The second is that indigenous communities in Mexico have become more and more politically conscious, and choosing an alphabet for themselves has become an important political statement. It is essential that we tie our description into such strong community values.

A second example of using these pedagogical principles is that the body of the grammar is based on the part-of-speech model originally developed by Doris Bartholomew (1976) to tie the description of an indigenous language to the grammatical description of Spanish taught in school. Otomanguean, however, is a family rich in syntax and relatively poor in morphology, and it is necessary to add chapters on syntax to supplement the description of each part of speech.

One branch of Otomanguean was represented at the workshop by seven different languages. Participants working in these languages took turns leading a series of special sessions to discuss each part of speech and how it should be presented in the grammar. Most participants found these sessions very helpful.

The production during this workshop surpassed my expectations. I had hoped each team would get one chapter drafted and revised, and a second chapter drafted, but each team got at least three chapters drafted, and some many more, and the quality of the material was very high. The challenge for the next several months is for them to finish writing when they are away from the workshop environment.

Some popular grammars are more thorough in their coverage than others. Even the most complete popular grammar is, however, not the same as a full reference grammar (see Payne 1995). While it would be desirable to have a reference grammar in each language worked in, the Mexico Branch has found this to be an unattainable goal––we simply do not have enough consultants to provide the needed help. The branch has therefore decided to aim at a full reference grammar for one language in each cluster of related languages, and encourage the production of popular grammars in the others.

Popular grammars constitute a significant part of language program goals. They make useful information about indigenous languages available in Spanish, so that it is accessible to native speakers, teachers, and Spanish-speaking researchers. A second advantage is that many members who would find the prospect of writing a full reference grammar overwhelming consider a popular grammar an attainable goal.

A well-written popular grammar should be of considerable use to linguists. If it contains an abundance of examples, including paradigms and some sample texts, it can provide the raw material for theoretical analyses. I have also suggested that participants keep a copy of the grammar on their computer after it is published, and supplement it with notes and further examples. This enriched version can be made available on diskette to interested linguists, and eventually archived.

A word needs to be said about a third kind of grammar sketch the Mexico Branch produces that is intermediate in coverage between a reference grammar and a popular grammar—the grammar sketches that accompany bilingual dictionaries. Such grammars are aimed mainly at nonnative speakers without a background in linguistics. They follow the part-of-speech model, and seek to be as theory-neutral as possible. They are shorter than reference grammars because they need to fit into a single volume together with the body of the dictionary. They are often more complete than popular grammars, however, because they need to provide enough information for the reader to parse the illustrative sentences in the body of the dictionary.

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Report on the 1995 International Conference on Linguistics marking the 20th Anniversary of the Linguistic Society of Korea

Hanyang University, Seoul, Korea, July 3-7, 1995

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This was the first linguistic conference I attended that was held in Korea. In its twenty year history, Linguistic Society of Korea hosted three previous international conferences on linguistics. They are referred to as SICOL (Seoul International Conference on Linguistics), and each resulted in a publication of selected papers entitled 'Linguistics in the Morning Calm', 1-3. This year's conference was not a SICOL, they said, but a special one marking the 20th anniversary of LSK, with the theme 'New Horizons in Linguistics'. They plan to publish selected papers from this conference in one of their regular journal issues.

After the opening ceremony on July 3, each of the six invited speakers from the United States, Germany, and Korea lectured three times (90 minutes each) throughout the week, taking the majority of time in the conference. One afternoon was devoted to a special panel of five speakers—all presented in Korean unlike the other sessions—on 'The background and the state of arts of Korean linguistics in North Korea'. Only two afternoons were allotted to the oral presentations of 70 papers, with five concurrent sessions on topics ranging from phonology and morphology to syntax, semantics, computational linguistics, and discourse/cognition/pragmatics.

The invited speakers were Paul Kiparsky and Ivan Sag from Stanford University, Jeanette Gundel and Joseph Stemberger from University of Minnesota, Roland Hausser from University of Nürnberg-Erlangen, and Dong-Whee Yang from Korea. Four of them prepared very detailed handouts (which were necessary due to the language barrier, i.e., using English to a largely Korean audience). Two speakers who started off with only transparencies on the overhead projector found it necessary to have all the copies of transparencies distributed as handouts in subsequent sessions.

Kiparsky's talks were mostly on Optimality Theory, dealing with phonological variation, markedness, vowel harmony, etc. Not being a phonologist, I haven't been following up with recent ideas, but his lectures were understandable. I was especially interested in his application of markedness not only to the sonority hierarchy, etc. but also to the animacy hierarchy and cases. My encounter with him—through his writing—was long ago, reading 'How abstract is phonology?' type articles. Stemberger also lectured on Optimality Theory in three parts: Basic issues, Syllables and feet in phonological development, and Segmental development. He compared Optimality Theory with Declarative Phonology, with orientation toward child language acquisition, which made his lectures more interesting. In explaining the constraints of phonology, he used the term 'grounding', as in phonetic grounding, communicative grounding, and cognitive grounding. I asked him why they use the term 'grounding' instead of the perfectly good term 'motivation' that Pike and others have long been using. To me, it was another case of the problem with terminology that we all too often have in linguistics; since the term 'grounding' is used in functional/discourse linguistics in relation to types of information such as foreground and background. Stemberger just said that the term has been used in phonology for several years now, and turned the question (or the answer) to Kiparsky, who didn't respond. Both phonologists focused on ease of articulation exclusively, so I asked a question on ease of perception, which although quite minor may play a role also. They both acknowledged that it needs to be accounted for as well.

Ivan Sag's lectures were on HPSG (Head-driven phrase structure grammar), a successor to GPSG (Generalized PSG), which Sag declared to be dead now. The original thinker of GPSG, Gazdar—whose lecture I heard in London in 1981—is pursuing computational linguistics, and the other, G. Pullum, in University of California, Santa Cruz—who we heard at TXSIL some time ago—is onto other things. Sag was an energetic speaker, who tried to show how his approach was better than Chomsky's, with a lot of tree diagrams and formalism. HPSG, which is being developed by Sag and Carl Pollard of Ohio State University, seemed to me quite formalistic, and in that sense looked far more like TG or GB (Government and Binding) of Chomsky's than any model that I have been interested in (most of which are functionally oriented). One interesting comment here is that some of his Korean examples, which he obviously included in a lecture to a Korean audience, were quite ungrammatical to me, and perhaps acceptable only with special intonation and in restricted context.

Hausser, a German professor with fluent English, lectured on his model of computational linguistics called the SLIM theory (Surface compositional, Linear, Internal, and Matching). His dissertation was on Montague semantics. He has a close association with Prof. Kiyong Lee (Korea University) who has a similar background.

Yang presented lectures on the minimalist program, and he tried to show what Chomsky's latest ideas are. After two lectures presented in English, his final one on 'The Korean case structure in the Attract-F theory' was delivered in Korean, which made it easier for everyone there including myself. Prof. Yang, seemingly a man with mild manners, made critical comments on HPSG and the use of statistics by Gundel, which triggered Ivan Sag to make supportive comments for Gundel. I also think the use of statistics is very helpful in linguistics, since, for example, a particular grammatical feature that occurs 80 percent of the cases in a given situation, although not all the time, can tell us a lot about the language. The conference atmosphere was generally amicable throughout, but I was reminded of the polemics in linguistics of the past (e.g., LSA annual meetings) and of the Kuhnian 'incommensurability' among different paradigms.

Jeanette Gundel, whose lectures I looked forward to the most because of my own interest, lectured on 'Pragmatic function and linguistic form'. Her first lecture was on cognitive status of the givenness hierarchy (from In focus, Activated, and Familiar to Uniquely identifiable, Referential, and Type identifiable), illustrating with English data with fine distinctions, e.g., the unstressed pronoun and articles/demonstratives. Her second lecture on a cross-linguistic study was less satisfactory to me for two reasons: (1) Most data presented were translations of the made-up examples of English, like *A/The/This/That dog next door kept me awake*, and (2) only NPs were used in her study of referring expressions, when in Japanese and Korean (and probably some other languages as well) the information outside the NP might tell us whether it is familiar or uniquely identifiable (e.g., the subject vs. topic particles in Japanese and Korean, or same subject vs. different subject markings on the verb in switch reference languages). Her last lecture was on 'Topic, focus and givenness', which seemed to be in line with her dissertation (included in 'Outstanding dissertations in linguistics'), entitled 'The role of topic and comment in linguistic theory' (from University of Texas-Austin, 1974). She talked about different kinds of givenness, and three different kinds of focus: psychological focus (in focus on the givenness hierarchy), semantic focus, and contrastive focus. Since the first type of focus is what has been described conventionally as topic (represented by unstressed pronouns in English, and by zero anaphora or a noun with the topic particle in Korean), it seemed to me very confusing to label them all as focus. She was not dealing with focus systems of the Philippine language type, for which the term, focus, might have to be reserved. I expressed my reactions to her usage, which seemed confused to me, and told her what Robert Longacre once said (personal communication): 'Don't just say focus or emphasis, because I don't know what that means.'

There were excellent in-depth papers on some aspects of the Korean grammar among the papers in the session on 'Discourse and cognitive pragmatics'. My paper was 'Procedural discourse: Characteristics and segmentation'. I dealt with four typical procedural texts from English (from a recipe to a how-to-do-it text), one short Korean recipe, and two 'how-to'-type English texts that don't seem to fit well into this type of discourse. I suggested that it might be necessary to view text typology from a prototypical point, i.e., the contingent temporal succession parameter might not be as strong for procedural in general as it is for narrative, and some instructional texts may not be prototypically procedural. No doubt further research is necessary for this little-explored type of discourse. One interesting anecdote here is that in individual sessions the conference language shifted between Korean and English depending on whether there was any non-Korean in the audience. So at the last minute I presented my paper in Korean after having prepared to give it in English. A dramatic shift, I felt.

There were about 200 participants at the conference, with the number fluctuating quite a bit at different sessions. It was encouraging to see that there were a roomful of people (50+) at the discourse and cognition session; in fact, they said, more than in any other session. Apparently the Discourse and Cognitive Linguistics group (where Bob Longacre lectured in Seoul last March) is very active with its own monthly meetings, both to present new ideas of their own and of other linguists, such as Langacker, in a lecture form. This type of 'learning' attitude was characteristic of the 1995 International Conference as well—with six invited speakers taking the majority of time, and 70 individual paper presenters had only 25 minutes each in five concurrent sessions. In that sense, the purpose or orientation of the conference was somewhat different from those I am used to attending in the United States, where most of the time is devoted to individual presenters with only a few plenary speakers. It felt strange for me at first, but I can see how the Korean style (so far) can be helpful for the participants.

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Report on the 24th Linguistic Association of the Southwest (LASSO) Meeting

New Mexico State University, Las Cruces, October 6-8, 1995

Shin Ja Hwang
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The 1995 LASSO conference was held on the campus of New Mexico State University. During the two-and-a-half-day conference, there were two special one-hour lectures—by George Lakoff and George Huttar—and about 60 thirty-minute papers in two concurrent sessions.

Lakoff's plenary address was on 'The metaphor structure of events and causes', scrutinizing English expressions that are used metaphorically. He pointed out, for example, the location metaphor in *I am in trouble*, which forms a minimal pair with *I have trouble*, that has the possession metaphor.

Huttar's presidential address was entitled 'How basic is basic vocabulary? An interface between cognitive and historical linguistics'. He dealt with basic vocabulary in several areas—color terms, animal names, body parts, kinship terms, numerals, and verbs—with data from a number of languages, from Agta and Ndyuka to Mixtec, Korean, and Indonesian. The paper, along with his paper published in the UTA Working Papers (1994), points out an interesting issue regarding 'Basicness': Is it basic, and therefore more salient, cognitively/psychologically or is it basic, and therefore more resistant to borrowing, in historical sense?

Others associated with SIL or University of Texas at Arlington that presented papers at the conference were Barbara Cameron, Robin Lombard, Kathleen Tacelosky, Carole Nix, Donald Lewis, Back-Sung Choi, Beaumont Brush, Gene Casad, and Shin Ja Hwang. In this report I will comment on a couple of papers that left a strong impression on me.

Harmon Boertien's (University of Houston) paper on 'Compound prepositions', presented examples of Prep + N compounds that he called prepositions (e.g., *uphill, downstream, inland, outdoors*) and those with same types of compounds that are nouns (e.g., *outfield, overview, undercoat, overtime*). The former might be called head-initial, and the latter head-final. Of all the papers he has been presenting at LASSO conferences on English morphology, I was most intrigued with this one. It reminded me of the paper by L. Talmy (1985) on 'Lexicalization patterns', which analyzed fine details of the verbs and prepositions (or verbal particles) within the cognitive grammar framework of Langacker of University of California, San Diego, e.g., *Come right back down out from up in there!*). Harmon explained that *uphill* is a directional preposition; it is not a kind of hill (hence head-initial, I would say). I didn't, however, agree with his conclusion that, since we can expand on (or keep on adding to) the basic prepositions by compounding, the category of prepositions in English is an open class. It seems to me that the derived ones by compounding would be better classified as adverbs (or verbal particles) than prepositions and that the part of speech, prepositions, would be a closed class.

'*I dunno but*...: A discourse account of the phonological reduction of *don't* in casual conversation' by Joanne Scheibman of the University of New Mexico, was an excellent paper combining insights from discourse, phonology, and sociolinguistics. Four groups of *don't* were set up based on the degree of reduction from the full form [dont] to the reduced form of just a schwa. The full form tends to negate the action or state expressed by the main verb (e.g., *we don't see him all winter*). The reduced forms are used to convey speakers' attitudes toward the complement clause (*yeah I don't think they'll go for your fantasy*), or to soften the discourse topic (*I don't know but I think*...), or to mark conversational turn, e.g., using *I don't know* to mark the end of the turn and open up the floor for others, in which case the expression has no particular semantic content.

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Report on 25th Colloquium on African Languages and Linguistics University of Leiden, 28-30 August, 1995

Mary Pearce
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Sixty-six participants enrolled in the colloquium with thirty-seven giving papers. Of these participants, four were from SIL: Constance Kutsch Lojenga from East Zaire, Robert Hedinger, Janice Spreda and myself from the Cameroon/Chad Branch. Janice gave a paper on 'Initial and final adverbial constituents in meta' narrative text'. Both Constance and I gave papers on depressor consonants, but from different perspectives. Her paper was entitled 'From two to three tones in Bila (Border Bantu, Zaire)'. My paper was entitled 'Consonants and Tone in Kera (Chadic)'. Around thirty percent of the participants were African. More than 30 percent of the papers were given in French.

A number of papers caught my attention: Tobias Scheer and Philippe Segerat presented a paper on 'Apophonic activity in the formation of some nominal plurals in Iraqw'. Anneke Breedvelf discussed 'The augmentative class and the classification of birds in Fulfulde'. She presented her research into the semantic categories that govern the classification of birds and then of other nouns. The paper was relevant to all who work with a class language as it suggested that the classification of nouns is less arbitrary than it is often supposed. Douglas Pulleyblank presented a paper, 'Towards a typology of tongue root systems'. Other papers of interest were: Francis Katamba—'The locative interpretations of applicatives in Luganda' and Shigeki Kaji—'Tone reversal in Tembo (Bantu J.57)'.

I presented a paper on the effect that Kera consonants have on the tone of the word. I used the model of Register Tier Theory as promoted by Keith Snider.

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Report on 1995 LSA Summer Institute

David Tuggy
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The 1995 LSA Summer Institute was held at the University of New Mexico, Albuquerque, from June 26-August 4. It was co-sponsored by the Linguistic Society of America and Gallaudet University. There was an emphasis on signed language, and most classes and virtually all lectures were interpreted in American Sign Language (a special training session for the interpreters was held beforehand). There were also emphases on American indigenous languages, Spanish, and the cognitivist and functionalist perspectives on linguistics. It seemed to be an extra-successful session, with a very large number of students and a record number of 'Institute Affiliates', mostly professional linguists, who paid to participate even though they did not need credit for the courses attended. Through a fellowship jointly sponsored by LSA and the North American SIL Schools (through the SIL International Linguistics Coordinator), I was privileged to be one of those Affiliates..

I attended most sessions of four courses. The first was Ronald Langacker's 'Introduction to the theory of cognitive grammar'. As I had studied with Ron in the past, I expected that some of this course would be review, but hoped there would be new ideas developed within the 14 years since I was at UCSD (at which time the theory was only two or three years old). The material continues to be (from my perspective) excellent—by far the most thoroughly thought-through and comprehensive cognitive/functional treatment of language that I am aware of, but there was not a lot that was surprising; most of the new developments I had picked up from other papers, books and presentations. Nevertheless it was stimulating to work through it again, and reassuring that what had been achieved 15 years ago was mature enough to stand the test of time so well.

I also attended Scott Delancey's course entitled 'Functional, typological, and cognitive approaches to syntax'. This was from a linguist whose work I have admired but under whom I had not sat. Many of Delancey's ideas resonated with me, and comparing his and Langacker's proposals, I consider the two viewpoints highly compatible.

Eve Sweetser and Phyllis Wilcox's course on 'Metaphor in signed and spoken languages' was a mixture of familiar ideas (metaphor theory) and material I am totally unfamiliar with (signed language). Most in the class were more or less fluent in American Sign Language, and many use ASL as their primary means of communication. They were an enthusiastic and lively class. Everything had to be translated either from English to ASL or ASL to English, which got complicated at times. It was interesting to see animated side-discussions taking place while someone was lecturing, without the general chaos this would cause if the side-discussion were also in spoken language. One factor I had not anticipated as a difference between signed and spoken languages in regard to metaphor was the impact of iconicity. Since sign is a spatio-visual medium and more of the concepts we try to communicate have salient spatial and visual than acoustic correlates, there is more room for and exploitation of iconicity (parallelism of form with meaning) in signed than in spoken languages. This parallelism is easily confused with the parallelism between meanings that constitutes metaphor. It gets confusing when you are saying, for instance, that a sign meaning 'up' is metaphorical—people start looking at the fact that the form of the sign involves upward motion of the hands, whereas the point is that the spatial meaning UP is used to structure a meaning in a non-spatial domain (e.g. HAPPINESS IS UP).

John Haiman's course 'Talk is cheap: Ritualization and the development of language' was in some sense the most entertaining one I participated in. Haiman has a knack for saying outrageous things and showing you that they make enough sense to take seriously. For instance, he says that it is not a bad thing that so much ink has been spilt regarding the arbitrariness of language by Saussure and so many others following him (Haiman has, of course, in his work on iconicity, helped show the limits of that arbitrariness), but at least equal time ought to be given to certain other essential qualities of language, such as its insincerity and its inconsequentiality. He led the class through lively discussions of sarcasm, how it is marked, what it means, what sorts of societies have it, etc. Many other sorts of topics were touched on, especially relating to other kinds of 'unplain speaking', including Jewish mother guiltive, euphemism, posturing, including so-called 'gayspeak', clichés, proverbs, politeness, affectation, and ritual speech. (Haiman believes, apparently—I say apparently because it is not always clear what he is really maintaining and what are postures he adopts for pedagogical purposes—in a sort of 'noble savage' theory, under which societies which have simple social structures will tend strongly not to have, or certainly not to be ridden with, phenomena such as sarcasm and some of these others which express such things as alienation and consciousness that one's words are always repeating someone else's; it has all been said before. I would be interested to hear from anyone who knows of such a society where there is lots of sarcasm. Those such as Aztec with a history of civilization probably don't count.) Then there was discussion of how much of this is part of the very nature of language, part of 'plain speaking' as well as unplain. In the end I was left with the feeling that the course cleverly (and by and large, correctly) debunked a lot of what is going on in language, but that the positive side of the same phenomena—what makes the debunking not the whole story—was not given enough time.

I also sat in for the first two weeks on Sandra Thompson's 'Conversation and grammar' course. One thing she said especially stuck with me. She had been discussing various methodologies in the study of conversation and other discourse genres, saying that some people like to count and seek truth in the summation of vast quantities of data. Others like to look at little pieces of data until they think they understand them quite well. The problem with the latter group is that they tend to extrapolate from the little they have studied, when it might not be at all representative of what is happening elsewhere. The problem with the former group is that you can't be sure of what they are counting. The moral is that we have to study linguistic structure both ways.

Besides the courses there were special lectures and a number of conferences held in connection with the LSI. The two I attended were the Fourth International Cognitive Linguistics Conference and the Conference on Functional Approaches to Grammar.

The ICLC was particularly stimulating and enjoyable for me. I presented a paper there entitled 'Tangled clichés: An introduction to a collection of bloopers', discussing such structures as 'All seriousness aside' (meaning 'in all seriousness' or 'all joshing/joking aside'), or 'make sure all your t's are jotted', or 'put your foot where your mouth is'. Gene Casad, from our Mexico Branch, was one of the organizers of this conference, and Rick Floyd, from the Peru Branch, gave a paper also. The Functional conference was organized largely by faculty from the University of Oregon. I gave a paper for this conference entitled 'Function becomes meaning: The case of Nawatl *tla*'. Doris Payne (SIL and UO) was present and gave a paper. There was a welcome emphasis on the importance of field work and primary data collection from the world's fast disappearing languages.

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7TH INTERNATIONAL CONFERENCE ON FUNCTIONAL GRAMMAR
Unversity of Córdoba, Spain - Sept. 23-27, 1996

Further information can be obtained from the the International Program Committee, c/o Kees Hengeveld, Dept. of Spanish, U. of Amsterdam, Spuistraat 134, NL-1012 VB Amsterdam; **E-mail**: kees.hengeveld@let.uva.nl.

Reviews of Books

Reports from Uppsala University Linguistics (RUUL). No. 26.

1994. Pp. 111.

Reviewed by BRITTEN ÅRSJÖ
SIL—Papua New Guinea

As a former student of linguistics at Uppsala University I found it interesting to review this volume. It contains five papers relating to different aspects of linguistics. Two of the papers, 'The concept of semilingualism and two hundred years of "scientificness" in linguistics' deal with language philosophical issues. One paper, 'A Swedish core vocabulary for MULDA', defines a core vocabulary to be used in a multilingual computer assisted translation and writing project being developed at the university. Another paper, 'The number of equations needed to test possible numerals' is an appendix to a paper presented in RUUL 25. It deals with interpreting numbers in ancient scripts and I will not be reviewing it here. The last paper, 'From lexical to grammatical—The story of **say** and **thus**' is the most relevant for the field linguist. It contains a cross linguistic study of the grammaticalized functions of words equivalent to English *say* and *thus*.

The semilingualism paper and the Swedish core vocabulary paper are written in Swedish with only abstracts in English. The other three papers are written in English.

Björk, Ingrid. ***Begreppet halvspråkighet***. 'The Concept of Semilingualism'.

The term *halvspråkighet* 'semilingualism' was created by Nils Erik Hansegård in the 1950s to describe the linguistic difficulties of a Finnish minority in Tornedalen in the northern part of Sweden. At that time the language policy was such that Finnish was discouraged. He described this minority as semilingual rather than bilingual, saying that they had an emotional deficiency due to insufficient abilities in both Swedish and Finnish. This started a debate in Sweden that went on for decades. Björk reviews the arguments of this debate to show that the concept *halvspråkighet* is poorly defined throughout and, according to her, based on a wrong assumption, namely Saussure's definition of language as *langage* 'language ability', *langue* 'a specific language system' and *parole* 'the concrete act of speaking'. One prominent view at the institution where Björk is studying, is that there is no such division in language. Language is the actual language **use** and there is no system behind it. Accordingly, if an emotional aspect of language is absent in a person's language ability he has simply not learned to **use** the language in that situation. This, writes Björk, does not necessarily lead to emotional privation as Hansegård has argued over the years.

I find the arguments of this paper interesting. That language is the **use** of language in actual speech situations is a useful concept when you speak of language learning. You learn to use certain words and expressions in certain situations. For myself, for example, I learned to speak about linguistics in English. That is the language in which I feel comfortable in discussing that subject. However, if I want to discuss my emotional state I would probably use Swedish. Does that make me semilingual? No, I have two languages that I **use** for different subject matters.

Wikholm, Eva. ***Svensk kärnvokabulär i MULDA: Enords- och flerordsenheter*** 'A Swedish Core Vocabulary for MULDA'.

This paper describes the process of defining a Swedish core vocabulary for a lexical database (MULDA) within a project of computer supported translation and writing.

A core vocabulary is the domain and style neutral part of the vocabulary of a language. Both function words and content words are included. There are one-word units as well as multi-word units. The selection was made from already existing sources of frequency based material.

Function words have been considered to be domain neutral by nature. To specify this notion for content words semantic criteria were used. An important semantic feature in the core vocabulary is abstract meaning. If other words are implied, for example by a verb, they must be non-specific.

MULDA is multi-lingual but the core vocabulary was as a first step defined according to monolingual criteria.

This would probably be a useful paper for those involved in developing a computer supported translation program.

Öhman, Sven. **Two hundred years of 'scientificness' in linguistics.**

This paper is a critique of linguistics as a science. Öhman argues that, starting with comparative linguistics in the 19th century through Saussure and the mathematician Hilbert to Chomsky's formal theory of grammar, linguists have simply been busying themselves with formal theories that have nothing to do with natural languages. He suggests that linguistics ought to be 'the study of language in order to achieve and/or to further the practical mastery of its use… To tell us what language—not formal theories of language—is actually like'!

That sounds on the surface of it like a great idea. I found during my studies in Professor Öhman's department, however, that to throw out all formal theories of language would make it extremely difficult, not to say impossible, to do the language work of the average field linguist. A balance between theories and reality is needed, I believe.

Saxena, Anju. **From lexical to grammatical: The story of *say* and *thus***

Saxena's aim with this paper is to show that functional change in a language proceeds in one direction one small step at a time. To prove this theory Saxena provides cross-linguistic data of *say* and *thus* and also a diachronic study of Sanskrit *iti* 'thus'. The interesting part of the article to me is not that she proves the theory to be correct but the actual cross-linguistic study of *say* and *thus* that she presents.

She shows that there is a hierarchy with four stages in the function of *say/thus*: **(1)** used to introduce a direct quote. (In some languages it is also used in complement constructions with cognition utterance verbs, e.g. know, believe, hope); **(2)** functions purpose and/or reason marker; **(3)** functions as a conditional marker; **(4)** functions as a comparative marker.

According to this hierarchy languages are either at stage one, or stage one and two, or stage one, two, and three, etc. The hierarchy that she finds in the cross-linguistic study she also finds in the historical development of Sanskrit.

This is an interesting study for the field linguist. Some of us can probably come up with good results looking at these things the way Saxena has done.

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Kwamera. By LAMONT LINDSTROM and JOHN LYNCH. Languages of the world/Materials 02. München: Lincom Europa, 1994. 47 pp.

Reviewed by FREDDY BOSWELL
SIL—Solomon Island Group

Kwamera is an Austronesian language spoken by 3,000 people on the southeastern end of the island of Tanna in the South Pacific island nation of Vanuatu. This short descriptive grammar is described by the authors as a:

> …relatively 'traditional' one, in the sense that we are not attempting to make any explicit theoretical statements. Rather, our purpose here is to present the facts of a previously undescribed language in a way which is intelligible to anyone with a reasonable amount of linguistic knowledge.

The grammar sketch does indeed follow traditional lines of basic grammatical categories description and the authors supply a reasonable amount of examples. Two interesting aspects of the language are the considerable morphophonemic alterations of the verbal prefixes, and the directional and reciprocal verbal suffixes which may be followed by transitive and negative postclitics. This short grammar sketch could be useful as a point of comparison for linguists working in other closely related Austronesian languages, particularly those in the linguistically diverse country of Vanuatu.

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Warrwa. By WILLIAM MCGREGOR. 1994. Languages of the World/Materials 89. München-Newcastle: LINCOM Europa. Pp. 64. $13.50.

Reviewed by C. JOHN FLETCHER
SIL—Australian Aborigines and Islanders Branch

This review should be read in conjunction with David Payne's review of two other works in this series (NOL 68:4-6). That review stirred my interest sufficiently that I offered to review this one as a possible model for a brief grammar write-up since the language has some similarities with the one with which I am now involved.

Warrwa is a non-Pama-Nyungan language belonging to the Eastern group of the Nyulnyulan family from the Western Kimberley region of Western Australia. This work consists of five sections (Introduction, Phonology, Morphology, Syntax, and an interlinear test of 32 lines) plus a Bibliography. The introduction (five pages) gives information on the classification of the language, its research history, and the geographical, cultural, and sociolinguistic situation of the people.

In the descriptive sections, limitations on the detail of the analysis are clearly stated where applicable by expressions such as 'beyond the scope of this [work]' (pp. 13, 49), 'cannot be justified here' (p. 27). The descriptive sections are set in a readable but small proportional space font with cited words in italics and morpheme names in all caps. The 114 displayed examples and all of the Text section are set in a visually larger font (monospaced, presumably for ease of alignment of the glosses).

The phonology section (five pages) briefly describes the (unexceptional) phoneme inventory together with phonotactics and stress. It sets a standard of admirably (enviably!) concise summaries of complex phenomena which is generally maintained throughout the work.

Morphology (36 pages) is by far the largest section of the work. Generally the descriptions are easy to follow. It is helpful that in displayed examples morphemes are individually glossed only to the extent relevant to the point under discussion with other parts of words glossed as complete units.

There are no noun classes or case inflections but some ten case relations are marked by bound postpositions, normally on the first word of an NP. An interesting speculation (p. 27) is whether a particular choice of ergative postposition may indicate an Agent who does something unexpected. There is some uncertainty whether some morphemes should be classified as derivational affixes, postpositions, or enclitics, and the conditions for many allomorphs can only be tentatively described. I was initially confused by the use of very similar names for disparate morphemes, though this is explained on p. 33; one was a de-nominal derivational suffix (-COMIT); the others were a pair of postpositions on nominals (-COMIT$_1$, -COMIT$_2$).

Free pronouns (p. 20) distinguish two cases (NOM and OBL) and three numbers (minimal, unit-augmented and augmented). Similar forms occur as object-indexing 'pronominal' suffixes on verbs (but lacking the unit-augmented number).

Verbal constructions are either simple, consisting of a single inflected verb, or compound, consisting of a preverb (large class, limited inflection) together with an inflecting verb (smaller class)—usually in this order. There is the interesting suggestion (p. 49) that in the compound construction the inflecting verb should be seen as a verbal classifier analogous to noun classifiers found in other languages.

The range of meanings expressed by verb inflection is unexceptional for an Australian language. The description of the morphology of inflecting verbs begins with a complex formula (p. 38), which is then well illustrated in detail over the following eight pages including many complex co-occurrence restrictions. However, in following the account I would have found it helpful to have had some sort of chart showing all the cited allomorphs in their correct relative positions, together with typical alternatives and references to the various tables and sections of the text.

Syntax (nine pages) briefly covers the structure of noun phrases, clauses, and complex sentence constructions. Evidence is cited (p. 50) that the categories NP and VP are required, contrary to the opinion that Australian languages typically show a 'flat' constituency structure. Six types of NP are identified and examples are given for all but one (determiner alone, for which Text item 25 could have been cited). The clause category includes verbless structures (p. 52). At the sentence level, explicit connective devices are infrequent, more common being simple juxtaposition of clauses (presumably leaving the propositional relationships to be determined pragmatically).

Within the syntax section, I would have found it more helpful if the specific part of a displayed example which related to the topic under discussion had been marked off in some way, such as by the use of [ ].

The text (three pages, 32 numbered units [approx = sentences]) is an invaluable feature of the work. Something similar should be included with any sketch grammar since it shows in a natural context many of the features earlier described. (This particular text is also a valuable and challenging piece of social history.) The presentation of the text is marred, as also some displayed examples elsewhere, by the lack of typographical distinction between the Warrwa morphemes and their glosses, so that a sentence which extends beyond one line involves four lines of type (Warrwa-gloss-Warrwa-gloss) in one solid mass. Italics for the Warrwa or a small amount of extra space would have given a much more readable presentation.

The general presentation of this work shows considerable attention to detail and consistency. I have noted only the following minor errors, of which only the first is of any significance: on p. 49, *-ngany* is glossed as -COMIT, should be -INST; on p. 33 'associtation' should be 'association'; on p. 49 -BANJI apparently should be -BANYJI (cf p. 56); on p. 60, text item (7), 'to trees' is presumably implicit information but is not identified as such; on p. 61, text item (19), 'he:did' should be 'she:did' or '3s:did'; this is also on p. 30 as example (25).

It is commendable to see this detailed attention given to the documentation of a language represented by just two elderly speakers (and by only a few speakers even in 1939, apparently). One hopes that all (including SIL-) linguists leave at least as much behind them in terms of summary material presented as precisely as in this work.

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Formal semantics: An introduction. By RONNIE CANN. 1993.
Cambridge: Cambridge University Press. Pp. 344.
Hardcover $69.95, Paper $22.95.

Reviewed by R. J. SIM
SIL—Africa Group

The publisher's blurb from the front cover concisely states the books claims:

> This book provides a clear and accessible introduction to formal, and especially Montague, semantics within a linguistic framework. It presupposes no previous background in logic, but takes the student step-by-step from simple predicate/argument structures and their interpretations through to Montague's intensional logic. It covers all the major aspects, including set theory, propositional logic, type theory, lambda abstraction, traditional and generalised quantifiers, inference, tenses and aspect, possible worlds semantics and intensionality. Throughout the emphasis is on the use of logical tools for linguistic semantics, rather than on purely logical topics, and the introductory chapter situates formal semantics within the general framework of linguistic semantics. It assumes some basic knowledge of linguistics, but aims to be as non-technical as possible within a technical subject...

In interpreting this, fairly stated as it is, it is important to recognize that introduction to formal, mathematically precise academic disciplines are rarely, if ever, easy, in spite of the exalted claims made for them. The book is not for the mathematically faint-hearted; even a little prior knowledge of mathematics will prove a help. As the title promises, the text is full of formal representations, some pages are well-carpeted with formulae 'in serried ranks assembled'.

Chapters average 32 pages length; five and six on the Lambda Operator (38 pp.) and Quantification (46 pp.) respectively, and ten on Intensional Semantics (40 pp.) are the longest and the heaviest. The Introduction (chapter 1, 25 pp.), Predicates and Arguments (chapter 2, 27 pp.) and Possible Worlds (chapter 9, 19 pp.) are the shortest and most readable. Chapter 7 on Inference (35 pp.) is also thought-provoking; chapter 3 on Negation and Coordination and chapter 8 on Time, Tense and Aspect are also very formative. Although these last will be hard work for many readers, the payoff will be a more cautious, less cavalier approach to what a translator claims is 'the meaning of the text'. Start with chapters 1, 2, 7 and 9, and ignore the formalism (first time through).

A brief section on recommended further reading is appended to each chapter, as well as various set exercises, whose answers are given at the end of the book; some exercises are open ended and provocative and no answers are included. The five and a half pages of Bibliography (called References) cites all the standard texts of the past 25 or so years and a useful number of recent Journal articles. The topical index is also adequate and indicates in bold those pages where concepts are discussed, undoubtedly the key need in an introductory text.

Print is a point size too small; the investment in the more usual size for academic texts would have been appreciated by readers. Small print adds a psychological weight to the density of information on the page which works to the reader's disadvantage, particularly in a subject as heavy as formal semantics.

Ronnie Cann's humor shows through in the preface, not least in his inscription of the work from the little village of Muckhart in Fifeshire—one wonders what the villagers will make of the book, no doubt the first such to originate there! I audited an early version of Cann's course in the middle 1980s when my mind was full of images of Ethiopia and my boots were full of icy-cold feet. More foreign I could not have been. If anywhere rivals Muckhart for obscurity, it might be my present location…

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7500 West Camp Wisdom Road; Dallas, TX 75236
Internet email: judy_payne@sil.org.

Aarts, Bas and Charles F. Meyer, eds. The verb in contemporary English: Theory and description. 1995. New York: Cambridge University Press. 313 pp. $59.95.

Abu-Absi, Samir. Chadian Arabic. Languages of the world/Materials 21. 1995. Germany: LINCOM EUROPA. 44 pp.

Allen, Cynthia L. Case marking and reanalysis: Grammatical relations from old to early modern English. 1995. New York: Oxford University Press. 509 pp. Cloth $95.00

Baker, Mark C. The polysynthesis parameter. 1996. New York: Oxford University Press. Cloth $95.00.

Biber, Douglas. Dimensions of register variation: A cross-linguyistic comparison. 1995. New York: Cambridge University Press

Bloomer, Robert. System-congruity and the participles of modern German and modern English: A study in natural morphology. 1994. Hamburg, Germany: Helmut Buske Verlag. 124 pp. Paper 58 DM.

Bouchard, Denis. The semantics of syntax: A minimalist approach to grammar. 1995. Chicago: The University of Chicago Press. 525 pp. Hard cover $

Brown, Gillian. Speakers, listeners and communication: Explorations in discourse analysis. 1995. New York: Cambridge University Press. 251 pp. Hardback $54.95.

Carleton, Troi C., et all. Texas Linguistic Forum 35: Papers in phonetics and phonology. 1995. Austin: University of Texas. 216 pp. Paper $11.50.

Casad, Eugene H., ed. Cognitive linguistics in the Redwoods: The expansion of a new paradigm in linguistics. 1996. New York: Mouton de Gruyter. 1,011 pp. Cloth DM 358,00.

Connell, Bruce and Amalia Arvaniti, Editors. Phonology and phonetic evidence: Papers in laboratory phonology IV. 1995. New York: Cambridge University Press. 403 pp. Hardback $64.95, paperback $27.95.

den Dikken, Marcel. Particles: On the syntax of verb-particle, triadic, and causative constructions. Oxford studies in comparative syntax. 1995. New York: Cambridge University Press. 288 pp. Cloth $45.00.

Flowerdew, John, ed. Academic listening: Research perspectives. 1995. New York: Cambridge University Press. 306 pp. Hardback $47.95, paperback $19.95.

Franks, Steven. Parameter of Slavic morphosyntax. 1995. New York: Oxford University Press. 409 pp. Cloth $75.00, paperback $39.95. (2 copies to publisher)

Geis, Michael L. Speech acts and conversational interaction. 1995. New York: Cambridge University Press. 248 pp. Hardback $54.95.

Hamp, Eric P., et al, eds. Readings in linguistics I & II (Abridged edition). 1995. Includes 39 journal articles published between 1925-1954, i.e. Sapir's 'Sound patterns in language', Swadesh's 'The phonemic principle', Harris' 'From morpheme to utterance', Firth's 'Sounds and prosodies', Kurylowicz' 'Linguistique et théorie du signe'. (Eleven articles in French, one in German, most in English.) Chicago: The University of Chicago Press. 302 pp. Paper $19.95.

Holliday, Adrian. Appropriate methodology and social context. 1995. New York: Cambridge Univesity Press. 237 pp. Hardcover $42.95, paper $16.95.

Holmberg, Anders, and Christer Platzack. The role of inflection in Scandinavian syntax. 1995. New York: Oxford University Press. 253 pp. Cloth $39.95.

Johnson, Karen E. Understanding communication in second language classrooms. 1995. New York: Cambridge University Press. 187 pp. Hardback $42.95, paperback $16.95.

Loprieno, Antonio. Ancient Egyptian: A linguistic introduction. 1995. New York: Cambridge University Press. 322 pp. Hardback $59.95, paperback $19.95

Malchukov, Andrei L. Even. Languages of the world/Materials 12. 1995. Germany: LINCOM EUROPA. 48 pp.

McGarry, Richard G. The subtle slant: A cross-linguistic discourse analysis model for evaluating interethnic conflict in the press. 1994. Boone, NC: Parkway Publishers. 195 pp. Hard cover $35.00 U.S.; $45.00 outside the U.S.

Nerbonne, John, et al, eds. German in head-driven phrase structure grammar. 1994. CSLI Lecture Notes No. 46. Stanford: CSLI Publications. 404 pp. Paper $22.25.

Ojeda, Almerindo. Linguistic individuals. 1993. CSLI Lecture Notes Number 31. Stanford, CA: Center for the Study of Language and Information, Stanford. 212 pp. Paper $17.95.

Plank, Frans, editor. Double case: Agreement by suffixaufnahme. 1995. New York: Oxford University Press. xvi 500 pp. $75.00

Sampson, Geoffrey. English for the computer: The SUSANNE corpus and analytic scheme. 1995. New York: Clarendon Press, Oxford. 499 pp. Cloth $90.00

Santa Barbara papers in linguistics vol. 5. Shoichi Iwasaki, , et al, eds. East Asian linguistics. 1994. CA: Linguistic Department, University of California, Santa Barbara. 263 pp. $15.00

Santa Barbara papers in linguistics, vol. 6. Carol Genetti, , ed. Aspects of Nepali grammar. 1994. CA: Linguistic Department, University of California, Santa Barbara. 248 pp. $15.00

Troelstra, A. S. Lecture notes: Lectures on linear logic. 1992. (CSLI Lecture Notes No. 29) Stanford, CA: Center for the Study of Language and Information, Stanford. 200 pp. Hardcover $49.95; Paper $18.95.

Vikner, Sten. Verb movement and expletive subjects in the Germanic languages. 1995. New York: Oxford University Press. 294 pp. Cloth $65.00; paperback $35.00.

Watkins, Calvert. How to kill a dragon: Aspects of Indo-European poetics. 1995. New York: Oxford University Press. 613 pp. Cloth $65.00.

Wechsler, Stephen. The semantic basis of argument structure. Center for the Study of Language and Information. 1995. Stanford, CA: CSLI Publications. 157 pp. Hardback $49.95, paperback $19.95. ■

DATES FOR THE 1996 GENERAL CARLA CONFERENCE

The dates for the General CARLA Conf. have now been set as Tuesday, November 12, 1996 through Thursday, Nov. 14, 1996 at JAARS (Waxhaw NC). Papers due May 15; contact Andy Black, P. O. Box 8987, Tucson, AZ 85738-0987; E-mail: Andy_Black@sil.org

There will also be a CARLA Clinic from Tuesday, Nov. 5, 1996 through Friday, Nov. 8. The Clinic will be an informal time where people can bring their CARLA problems and suspected bugs, seek advice, perhaps get assistance with lexicon conversion, and generally get help. Bill Mann will be the local organizer, but others will also be available to help.

NOTES ON *LINGUISTICS*

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From the Linguistics Department

New International Linguistics Consultant and Participatory Research

A new International Linguistics Consultant has recently been appointed, Constance Kutsch Lojenga of the Eastern Zaire Branch. Connie brings experience from several entities in the Africa Area of SIL, and specializes in phonology, orthography, and grammar description.

At the October 1995 Africa Area Linguistics Consultant's Seminar (reported on in this issue on page 39), Connie gave a very thought-provoking presentation on 'Participatory research in linguistics'—a report on her own involvement in a facilitative approach to a language program in Zaire, with suggestions on how the approach can be extended elsewhere. A version of that presentation is included in this issue of *Notes on Linguistics*, page 13.

Connie's presentation at the Consultant's Seminar resonated with me. Back in the 1970's when I began work in a language program in the Peruvian Amazon region, without really stopping to reflect on it as a 'strategy', I found myself drawn to certain activities that, early on, involved the Asheninka people doing linguistics, such as experimentally writing their language at an early stage of phonological investigation and in thinking about grammatical categories by writing out paradigms. Connie's work on 'participatory research' provides a thorough and well-thought-out perspective for engaging a high level of participation by speakers of a minority language with a field linguist, in researching their language. I believe aspects of it could beneficially be applied to any linguistic field project.

—David Payne

16th International Congress of Linguists
Paris, France—July 20-25, 1997

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A step-by-step introduction to Government and Binding theory of syntax

Cheryl A. Black
SIL—Mexico Branch and University of North Dakota

This is the first article in a series designed to provide a data-motivated, stepwise introduction to the main tenets of the Government and Binding (GB) theory of Syntax, which was developed mainly by Chomsky (1981, 1982, 1986). The content of the articles is excerpted from the Syntax II course I teach at the Summer Institute of Linguistics at the University of North Dakota (SIL-UND), which is in turn based upon courses I took from Sandra Chung at the University of California at Santa Cruz. After presenting a condensed version of this material as Staff Updates last summer, I was encouraged to write these articles to make the material available to a larger audience. I hope that the reader will find this method of presentation as interesting and helpful as the students and staff at SIL-UND have. The basic understanding of the theory gained should enable the reader to have much improved comprehension when reading theoretical articles and to see how formal linguistic analysis could be helpful to their own program.

The proposed articles for the series will cover:

1. Subcategorization and X-bar theory for lexical phrases
2. Extending X-bar theory to sentences and clauses
3. X-Bar theory applied to languages with other word orders
4. Constraints on movement
5. Semantic roles and case theory
6. Binding theory
7. Recent updates: more functional projections and morphology in syntax versus checking theory

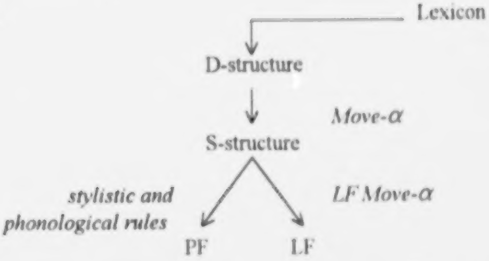
The majority of the data used in the articles will be English to allow the reader to learn the theory without the hindrance of working with an unfamiliar language at the same time. By the third article, however, the reader should be able to begin applying the theory to the language he is working with, which is the goal.

1. Overview of Government and Binding theory

GB assumes that a large portion of the grammar of any particular language is common to all languages, and is therefore part of Universal Grammar. The GB view is that Universal Grammar can be broken down into two main components: levels of representation and a system of constraints.

GB assumes a derivational model consisting of four levels of representation, as diagrammed in (1). The lexicon lists the idiosyncratic properties of lexical items which constitute the atomic units of the syntax. These properties include what arguments the item subcategorizes for, etc. Lexical items are combined together at D-structure (underlying structure). D-structure is mapped into S-structure, which is the syntactic representation that most closely reflects the surface order of the sentence. S-structure is not directly interpreted itself, but is factored into Phonological Form (PF) and Logical Form (LF). PF is the interface with the Phonology where shapes, sounds, and groupings of items are directly represented. LF is the interface with the Semantics. Predication relationships and the scope of quantifiers and operators of various kinds are explicitly represented in the phrase structure at LF.

(1)



These levels are related to one another by rules (noted in italics in (1)). A single movement rule, Move-α, maps between D-structure and S-structure and a similar rule maps S-structure into LF. Move-α is stated as a simple rule basically allowing anything to move anywhere, since the system of constraints (which will be introduced throughout this series) is responsible for correctly restricting this movement. Stylistic and other phonological rules are assumed take place at PF. These articles will be limited to the D-structure and S-structure levels of representation.

2. Constituent structure and subcategorization

A word, such as a noun, verb, adjective or preposition is a lexical category. In structural terms, they are called heads. Phrases are meaningful groupings of words built up from the lexical category of the same type that they contain. Examples of phrases are: NP, VP, AP (=AdjectiveP), and PP. But the particular head is choosy about what can combine with it to form a phrase.

VP examples:[1]

(2) died / *died the corpse / *died to Sue about politics
(3) relied on Max / *relied *relied from Max / *relied to Max
(4) dismembered the corpse / *dismembered
(5) talked (to Sue) (about politics) / *talked that the economy is poor
(6) read (the book) (to John) / read that the economy is poor
(7) supplied the Iraquis (with arms) / *supplied
(8) told Sylvia (that it is raining)
(9) revealed (to John) that problems exist / revealed the answer (to John)

A **complement** is a phrase that a lexical category takes or selects. Which complements are taken by a particular verb is an arbitrary property of that verb: in (2) *died* cannot take any complements; in (3) *relied* must have a PP complement with *on* as the preposition; in (4) *dismembered* must take an NP complement; in (5) *talked* can take an optional PP complement with *to* as the preposition and/or an optional PP complement where the preposition is *about*, etc.

We can represent this subcategorization as shown in (10), where the square brackets delimit the phrase and the environment bar indicates the position of the lexical head. Required complements are simply listed, whereas optional complements are enclosed in parentheses. Finally, in cases where a complement with a particular head is subcategorized for, the head is listed as a feature on the complement (as for *rely* and *talk*).

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[1] Throughout this series of articles, * before a word, phrase or sentence indicates ungrammaticality. Our grammar must not only generate all grammatical sentences in the language, but also correctly rule out all ungrammatical sentences. The latter is the more difficult task (the simple rule S=Word* generates all grammatical sentences in any language), so knowledge of what is ungrammatical is crucial.

(10) die, V, [_]
rely, V, [_ $PP_{[on]}$]
dismember, V, [_ NP]
talk, V, [_ ($PP_{[to]}$) ($PP_{[bout]}$)]

Adjectives, nouns, and prepositions also subcategorize for their complements.

AP examples:

(11) red / *red that Sylvia would win
(12) afraid (of snakes) / *afraid to this issue
(13) orthogonal (to this issue)
(14) ambivalent ((to Joe) about her feelings)
(15) certain (that Sylvia would win)
(16) insistent (to Joe) (that we leave)

NP examples:

(17) group (of scientists)
(18) individual
(19) book (about photography) / *book to Fred
(20) generosity to Fred
(21) dislike of Fred
(22) ambivalence (to John) about my feelings
(23) rumor that all is well
(24) message to the Contras

PP examples:

(25) about the talk
(26) before [we leave]
(27) from [over the hill]
(28) [looked] up

We can generalize that the lexical categories (V,N,A,P):

a. Subcategorize for their complements.
b. Precede their complements in the phrase.[2]
c. Cooccur with other constituents.

---

[2] This ordering of lexical categories before their complements is obviously not a universal. Article 3 will deal with how to account for languages with different word orders.

Heads and complements are not the only parts of phrases. For example, NPs can be preceded by words (or sometimes phrases) like: *the, no, some, every, John's, my mother's*. APs can be preceded by degree words such as: *very, extremely, rather, quite*. These items differ from complements because they precede the lexical category and they are not subcategorized for. They are called **specifiers**.

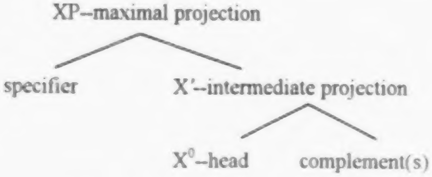
3. X-Bar Theory

GB seeks to capture the similarities between different categories of lexical phrases by assigning the same structure to them (as shown in (30)). Rather than having different phrase structure rules for VPs, NPs, etc., just two basic rules cover all the lexical categories.

(29) Phrase Structure Rules:

(for any lexical category X, X^0=Head)
$XP \longrightarrow$ Specifier X'
$X' \longrightarrow X^0$ Complements (=YP^*)

(30) Basic X-Bar Structure



Claims involved in this schemata:

1. All phrases are projected from lexical categories in the same way (i.e. the PSRs in (29)).
   a. For conjunction: $X^n \longrightarrow X^n$ Conj X^n.
   b. For adjunction: $X^n \longrightarrow Y^m\ X^n$.[3]

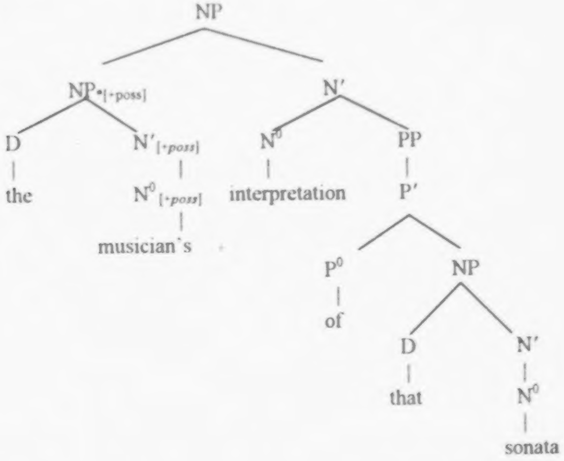
---

[3] *n* may be any bar level (0,1,2=X^0, X' or XP), *m* may only be 0,2 since only heads or maximal projections may move or adjoin. Also, the right side of the adjunction rule is unordered; adjectives adjoin on the left, but other NP adjuncts such as relative clauses adjoin on the right and VP adjuncts such as adverbs may adjoin on either side.

2. A head (=X^0) subcategorizes for all and only its sisters.
    a. The subcategorized complements are always phrases.
    b. Heads and their maximal projections share features, allowing heads to subcategorize for the heads of their sisters (i.e. *rely*).
3. In general, specifiers are optional. Evidently, specifiers may be words or phrases.

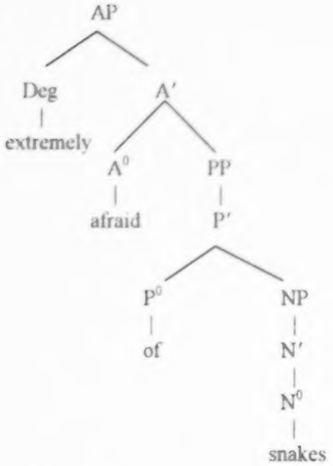
The following trees illustrate how X-Bar theory works. We apply the X-Bar rules to specific categories. First find the head, which determines the type of phrase, then look for specifiers, complements, adjuncts, and conjunctions. In (31), *interpretation* is the head, *the musician's* is the specifier, and *of that sonata* is the complement in the NP. The specifier and complement are each phrases themselves which are also diagrammed via the X-Bar phrase structure rules.

(31)



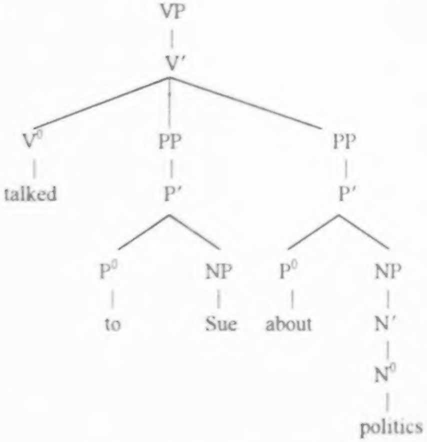
In (32), *afraid* is the head, *extremely* is the specifier, and *of snakes* is the complement in the AP.

(32)


AP
Deg
extremely
A′
A⁰
afraid
PP
P′
P⁰
of
NP
N′
N⁰
snakes

(33) shows a VP headed by *talked* with two PP complements.

(33)


VP
V′
V⁰
talked
PP
P′
P⁰
to
NP
Sue
PP
P′
P⁰
about
NP
N′
N⁰
politics

Tree (34) illustrates how conjunction and adjunction fit into the X-Bar schemata. The conjunction rule is shown for *black* and *white*;[4] *huge, black*

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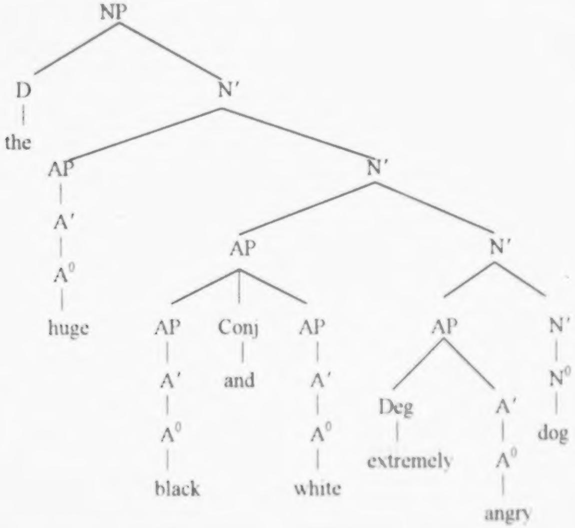
[4] In this case, the conjunction could have been shown at either the A' or A^0 level instead.

and white; and *extremely angry* are all adjuncts which are adjoined to N′, showing how the adjunction rule is recursive; *the* is in the specifier position and *dog* is the head of the whole NP.

(34)



At this point, even though we can draw trees for some complex phrases, we still cannot do even a simple complete sentence such as *John hit the ball*. The rule S → NP VP does not fit the X-Bar schemata. We also cannot draw a tree diagram for a clausal complement to a verb, such as the *that*-clause in *read that the economy is poor*. In order to make sentences and clauses fit X-Bar theory, we need to determine the head, specifier, and complement for each. This will be the task of the next article.

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■

Participatory research in linguistics

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1. Introduction. In 1988, I started an experiment of group participatory research in Ngiti, an unresearched Central-Sudanic language of Zaire. The population had requested help in writing the language. They had put quite a bit of thought to devising their alphabet and had printed a hymn book, hoping to move on into Bible translation after that. However, the alphabet they had designed themselves had appeared overly difficult to read. Hence their request for help.

My aim then was to develop an adequate alphabet with as much local participation as possible, training the people in their own environment so that they would be able to produce good-quality work and carry the main responsibility of the translation project themselves.

I first concentrated on phonology and tone so as to ensure a consistent orthography. However, because of people's interest and fascination with their language, we continued researching the grammar together as well. The group of speakers of the language participating in this research consisted of ten to fifteen volunteers. Sessions varying in duration from one to two weeks were held about three times a year. At first, we had several headmasters and school directors, together with a number of local pastors and curious older people. Everyone was welcome and participated. Gradually, more and more highly educated people started taking an interest and participated in the sessions. They are now the ones carrying forward the language development and Bible translation project.

The main emphasis in this paper lies on the methodology developed for working out the phonological analysis in such a way as to raise the awareness of the native speakers for the sound and tone system of their language. However, the general principles of this participatory research can be applied to all other domains—grammar research, semantics and discourse analysis, etc.

I have seen 'traditional' language projects headed up by an expatriate team where their aim has been to get through the 'preparation phase', namely the linguistic analysis—phonology statement, orthography statement, basic grammar statement, discourse analysis, etc.—in order to start what they consider to be 'the real work', namely translation. The emphasis of the linguistic analysis was on completing required 'write-ups', rather than facilitating native speakers—the insiders—becoming part of the process.

I have also seen 'national' projects move into translation at a very early stage before solid analysis had been completed so as not to make the people 'wait' unnecessarily long for the Bible portions in their own language. Sometimes outsiders are sent in to help do some of the analysis, often at a very late stage, again with the aim of getting the analysis on paper, not necessarily so that the insiders (the speakers of the language) can own the contents and benefit from them.

This paper is a plea for giving linguistics a more prominent place as an important part of a language development program, and to do it in such a way that the real 'owners' of the language participate to the full, getting trained to the highest of their potential and excited about the development of the language. This, in turn, creates an interest on the part of others to read in their language and to use the written material in their mother tongue once it is available.

2. Participatory Research. The following are some background thoughts giving the rationale for maximum involvement of groups of native speakers by letting them participate actively in the research, thus giving them informal training.

1. In most language groups there are people who have had some amount of schooling. A field-linguist can work with them, proceeding along a path of discovery in the development of their language, raising their awareness of linguistic features of their language in phonology, orthography, grammar, developing a good style of writing, etc.

2. In participatory research, the aim is to involve several speakers of the language simultaneously in group research. Most people in preliterate societies love discussing their language and working in groups—it is a social event. Elderly people are of particular benefit when they participate in this activity. They are walking dictionaries which may soon be gone. They are highly respected, and if they see how the task belongs to all of them, they may accept the project from its very early stages.

3. When working on different aspects of a language with a group of native speakers, one principle is to share with them at any time what one is doing and why one is doing a particular thing. When people are

involved and participate, they understand what the goal of the activities is. They will make remarks and give their input and insights. This will not only speed up the analysis but also contribute to its quality. Their remarks may confirm certain hypotheses, disprove others, or supply additional data to extend and refine observations and hypotheses.

3. Data Gathering. This section contains practical remarks on how one can gather data for a sound and solid analysis of the basic phonology by involving a group of native speakers of the language and doing participatory research with them. The suggestions are based on the experience gained in working with the Ngiti people and could be repeated in different ways in different situations.

Our first exercise was to gather enough data for a solid analysis of the sound system—a good corpus of lexical items. The initial group of people I worked with consisted of a cross-section of people—some highly educated and some minimally educated, young and old, all with a desire to develop a readable alphabet for their language for the sake of a Bible translation.

Though we are accustomed to having the outside trained linguist doing initial transcription of the data in the language to be studied, I began by asking the speakers of the language to write the words of their language on slips of paper. In retrospect, having seen how much people participated actively, it seems to communicate to them two positive messages which are of great importance for the ownership of their translation project:

1. we affirm that the language is theirs, and
2. we affirm that they are capable of working on the written development of the language themselves.

The rationale behind this practice is the following: Articulatory phonetics and transcription is somewhat subjective. None of us can perfectly transcribe the phonetics of the language being studied. We tend to hear a new language through the grid of our own mother tongue and may miss subtle distinctions. Therefore, when writing down data in a new language we make many mistakes. These mistakes are often unsystematic. However, when native speakers try to write their language, they will often do it against the grid of the language in which they have learned to read and write in school. However, since the phonological system of the language they learned to read in school and their own mother tongue do not completely overlap, they may not be aware of all the sound distinctions at this early stage. They will likely under-represent certain sounds, but often in a systematic way, which is an advantage for the next stage, namely working out the basic phonological analysis.

In the Ngiti experiment, I divided the group of sixteen people in two smaller groups of eight people each. The older people appointed a younger person among them as 'scribe'. He wrote the items down and the others supplied the words, enjoying the social event of discussing their language.

Experience has taught me that a phonology cannot normally be worked out on the basis of 200, 300, or even 600 words. I normally recommend a minimum of 1000 lexical items in order not to miss sounds, contrasts, or instances of complementary distribution. The first task of the two groups of Ngiti speakers was therefore to collect at least 1000 lexical items—nouns and verbs. These were written by hand on slips of paper—the task of the 'scribes'. These scribes wrote down the items in whichever way they were able, based on their knowledge of the language of wider communication. An assignment like this can easily be completed in two or three days when the people themselves collect the data in two groups as we did.

Here are some ideas I gave to the participants for data collection in groups:

'Write down all the names of different fishes you know.' When they exhausted their ideas on that topic, they continued with the names of trees, all the different grasses they could come up with, different types of insects, birds, household utensils, crops, etc. It would be helpful to write nouns in singular and plural forms from the start, or with their gender marking if applicable. At this point the glosses do not need to be as precise as one would want to see them later—'type of fish' would be sufficient, since the main objective at this stage is to have data in the language to work out the phonology in close collaboration with a group of speakers of the language.

Collecting verbs is usually more difficult than nouns. First of all, one wants to discover if there is an infinitive form which can be used consistently. Talking about infinitives in the language of wider communication or a national language might help them to find the appropriate form in their language. If an infinitive cannot readily be found, an imperative form could be chosen, or else the morphologically least complex form which could be cited consistently. Word lists may provide ideas for eliciting verbs, but at the same time one can let people know that they do not need to translate every verb they meet in a list. Rather, if any verb sparks off their thoughts to another verb, semantically, phonologically or tonologically related, one would also write those down.

It is a good practice to keep nouns and verbs separate, and then to weed out any words which look like compounds or in any other way morphologically complex, since the first phase of the phonology needs to be worked out on the basis of MONOMORPHEMIC forms, or roots within words which may have obligatory prefixes or suffixes. The aim is to not get involved in morphophonology while doing the basic phonology. Other word classes can be taken into consideration at a later stage to see if they fit within the overall pattern of the sound system established, or if any special sounds or syllable patterns appear.

Not only will the collection of lexical items serve as basis for the analysis of the phonology, but at the same time it forms the beginning of a lexicon, later to be developed into a more extensive dictionary, which will serve as the reference point for a language development project.

4. Phonological Analysis.

4.1 Principles and Procedures. Before presenting the methodology of how we checked the vowels, consonants, and tones, here are some background thoughts and principles: defining what it is we want to know, what should be compared with what, and how to look at word and root structures. If we define what it is we want to know, we will be able to devise an approach to reach our goal. On the whole, we want to know which sounds are contrastive and which ones are in complementary distribution.

Complementary distribution in general applies to the following types of cases:

1. The co-occurrences and co-occurrence restrictions between consonants and vowels.

2. Mutual exclusive distribution of certain sounds in certain positions in the syllable, root, or word structure.

Therefore, the PHONOTACTICS of the language, and not a small set of minimal pairs, are the more important element in phonological research. Minimal pairs are just a perfect and special example of certain contrasts. When reading through phonology descriptions one often finds that minimal pairs contain a mixture of nouns, verbs, words from closed classes like pronouns, ideophones, inflected verb forms, and other forms which are not really comparable because of their word class or their morphological structure. Lists of minimal pairs fail to show the complete CV distribution and the distribution of each phoneme in different positions in the word/root structure, which is the more important element in trying to discover contrast and complementary distribution.

In some phonological descriptions. distribution charts are supplied containing ticks or crosses to show the CV distribution, but in light of the fact that in many cases no morphologically consistent or comparable forms have been used in the minimal pairs, the ticks or crosses may mark CV combinations in non-comparable environments. Those charts may not highlight the particular distributional restrictions that one would like to see. We would want to see lists of words ('analogous pairs') demonstrating all CV combinations and for all separate positions in the root morpheme. In this way any systematic or accidental gaps in CV-distribution or any gaps of certain sounds in certain positions in the root or word will immediately hit the eye. These gaps will show themselves to be systematic when it concerns a particular subset of sounds—a natural class. Cases of complementary distribution will jump out quite obviously.

It is very important to compare those items which are comparable! Sounds should be compared in similar positions in the root structure. For the purpose of determining contrasts and complementary distribuition, sounds which are the result of morphophonological processes should not be compared with sounds in a root. An initial prefix consonant should not be compared with an initial root consonant, even if both are word-initial. A root-initial consonant following a prefix should not be compared with a root-medial consonant even if both occur word-medially.

The first question, therefore, is (looking at basic nouns and verbs only): what are the syllable structure(s), the root structure(s), and the (non-compound) word structure(s) (which may or may not contain obligatory affixes).

CV, CVC, CVV, CVVC

CV, CVC / CVVC, CVCV/ CVVCV

By way of example:

- Ngiti has only open syllables with short vowels, i.e. V and CV. The basic word structure is VCV, though a considerable amount of borrowed words from a neighbouring Bantu language exist with a (px)CVCV structure.

- Lendu, the neighbouring and most closely related language, similarly has only open syllables with short vowels. Its basic word structure is CV for the majority of the nouns and for all verbs. There is no obligatory affixation.
- Many Bantu languages have a basic noun structure pxCVCV (interlacustrine Bantu languages have long vowels, pxCVVCV, in addition) containing disyllabic roots. Verb infinitives are pxCV(V)C-a and consist therefore of monosyllabic roots -CV(V)C-. Every noun or verb has an obligatory prefix; verb infinitives have an obligatory verb-final vowel, mostly -a.

Working through the procedure in a regular way, I normally start checking through the vowel system, then work on consonants, and finally work on tones and tone patterns on words in isolation.

The steps in the analysis depend on the syllable, root, and word structure. Every subsequent step depends to a certain extent on the outcome of the previous step. The example given here is how we did it in Ngiti. Adaptations need to be made according to the syllable, root, and word structure of the language being researched. I always proceed from easy to difficult.

4.2 Vowels. In our Ngiti experience, the people had written their data with five vowels: a, e, i, o, u, following the Swahili alphabet. I expected that there would be more vowels—seven or nine.

We worked out this puzzle together with the people who had written the lexical items in such a way that they became fully aware of the vowel system of their language, realized it was different from Swahili and that it contained nine vowels. Going through this discovery process themselves made them not only willing but wanting to write nine vowels in their alphabet! In language programs where the outside linguist does analysis and devises an orthography without extensive native speaker involvement, there is often a resistence to using symbols that are not part of the language of wider communication or national language.

For any step in the process, I explained fully to the people WHAT we were going to do and WHY, so that they could actively participate. I tried to get them to concentrate on listening to the particular feature we were trying to check, and not to get side-tracked into explanations of meanings at this point nor into trying to pay attention to any other sounds or tones that may stand out. The only thing we were aiming for at this point was to try to come to a consensus on whether all sounds in the particular stack of words to be checked (written the same so far) were indeed the same, i.e. separating DIFFERENT from SAME. The result is a first observation and hypothesis as to how many vowel qualities this language has.

In Ngiti, we sorted the VCV nouns and listened first of all to those in which $V_1 = V_2$: aCa, then iCi, etc., according to the way the people had written them, realizing very well that they had most likely under-represented certain vocalic contrasts.

In other similar situations I always start with the vowel *a* (or *a-a* in disyllabic words), because it has the function of getting people into a rhythm for the remainder of the task—checking through the more difficult sounds. Following that, I would go through the stack with iCi and uCu. In general, any contrasts in the high vowels are easier to perceive than mid-vowel contrasts.

In Ngiti it appeared that there was an ATR (Advanced Tongue Root) contrast in the high vowels as well as in the mid vowels. Having learned to read in Swahili, the people had written their nine-vowel system against the grid of the Swahili five-vowel system in such a way that the [-ATR] and its [+ATR] counterpart were systematically represented by the same symbol.

SWAHILI vowels (orthography)		Ngiti vowels		
i	u	i	u	[+ATR]
		ɪ	ʊ	[-ATR]
		e	o	[+ATR]
e	o	ɛ	ɔ	[-ATR]
a		a		

Native speaker reaction was very helpful at this point, since for outsiders' ears it was quite difficult to hear the difference between a [-ATR] high vowel [ɪ], and a [+ATR] mid vowel [e]. For native speakers this generally does not present a problem. They, however, lump together the [-ATR] and [+ATR] counterparts [i] and [ɪ], [e] and [ɛ], etc. This meant that when we checked the words written with i e i, two groups emerged—those with the 'real' [+ATR] [i], and those with the [-ATR] [ɪ]. Similarly, this was the case for all the other vowels. When listening to long lists of words only containing these two sounds (so far underdifferentiated by native speakers), the contrast between the two closely related vowel qualities soon became clearly audible both to me and to the native speakers.

The next step was to check the vowels in combinations in which $V_1 \neq V_2$, again, according to the transcription of the people: aCi, aCu, aCe, aCo, iCe, iCa, etc. We divided them into groups with all the same combinations, and then checked them systematically for consistency within each group. Here, too, they had under-represented in the same way as had been noticed before—the group aCi produced two groups: aCi and aCɪ, etc. All the vowels previously discovered also surfaced in this second stage.

One element of the phonotactics of a language consists in discovering the V_1 - V_2 co-occurrences and co-occurrence restrictions within roots. This second step of working on the combinations in which $V_1 \neq V_2$ immediately showed these combinations. In this language with ATR vowel harmony, it also showed the systematic gaps, namely the impossibility of combinations of vowels of different ATR values within a root.

When finished with the basic nouns, we followed the same checking procedure for verbs. In most languages we expect this step to yield the same number of vowel contrasts as were found in the nominal system; occasionally one might find a different vowel inventory in the verb system. However, more often the permitted V_1 - V_2 combinations may not be the same in verbs as they are in nouns of the same segmental structure. This appeared indeed to be the case in Ngiti.

The following are some brief remarks for languages with different structures.

If a language has CVC syllables, one can follow the same procedure but one should also subsort and check each vowel according to the final consonant which may not have been checked yet, since vowel quality may be affected by the final consonant.

Length may or may not have been written. It may be ignored at first if no one has written it. If it has been written it may not be consistent, therefore we would place a stack of (px)CaaCa slips below all the (px)CaCa slips, etc.

If the language seems to have contrastive length, that could be sorted out after checking the different vowel qualities, determining in which position in the root long vowels may occur contrastively. Once a stack is consistent for vowel quality, one can go through it once again separating long vowels from short vowels.

Creative approaches to deal with leftover problems can be divised, but it is always important to study and check the items in the context of a number of instances of the same type. It is not helpful to study isolated instances because their place in the whole phonological system will not immediately be obvious.

Finally, one should study carefully each individual case which may constitute an exception.

4.3 Consonants. The aim for phonological analysis involving consonants is to check all consonants in all positions in the syllable, root, or word. The Ngiti case was relatively straightforward in that there were no syllable-final or root-final consonants, nor did the language have root-medial consonants. (The VCV structure may be interpreted as a non-functional prefix, followed by a CV root).

In other languages one would start by making separate consonant charts for the different positions in the syllable/root/word. This will highlight any generalizations about consonants in different positions in the syllable/root/word, which in turn will show the real cases of contrast, cases of limited distribution, and cases of complementary distribution.

For languages with open syllables only, the syllable-initial consonants may or may not need to be divided in the root-initial and root-medial consonants. In many languages the root-medial consonants form a small subset of the root-initial consonants. A well-known case of complementary distribution is a root-medial -r- as an allophone of /d/. For this reason it is best to pursue this distinction until it is clear whether it is important.

Languages with open and closed syllables present a much more complex case and need careful examination, even more so if they have obligatory affixation. First, one needs to check (root-)initial consonants and (root-) final consonants. The medial consonants need to be differentiated according to 'medial between two vowels', 'medial between V - C', and 'medial between C - V'. In each case, different types of morphological concatenations need to be separated. It may be necessary to collect paradigms of different morphological constructions and study and compare these in order to posit the underlying form of the morphemes and to get at the underlying phonemes in any particular position.

By way of example: in Ngiti, people had written a 'b' in certain words and 'bh' in others, which most likely represents a perceived difference between an egressive 'b' and an implosive 'ɓ'. It is possible that the different people who had written down the data had not been consistent, or that some had been aware of the difference and others not. We put them together in one pile and tried to tune our hearing to two different 'b's', splitting the data into two piles according to the type of 'b'. After another check for consistency within each of these piles, the awareness of the local people had been raised into recognizing this particular contrast in their language.

We checked all consonants following this procedure. If two consonants were phonetically close, we would put the data for these two consonants together and see if, together, we could all hear the contrast and agree on every single word. All other consonants would be checked in their particular position in the word.

All the time we would keep complete track of the vowels that could combine with each consonant, and of the position in the root/word of the particular consonant. Through studying the phonotactics of the language in this way, any gaps in the distribution would stand out, highlighting possible cases of complementary distribution.

4.4 Tone. This section contains a few generalized remarks on tone analysis gained from experience in Ngiti and other languages.

First, it is best to assume that an African language is tonal until one can prove the contrary! Raising people's awareness of tone in their mother tongue may well be easier than raising their awareness of certain vowel or consonant contrasts. Since children mimic the tones of their language often before they can properly pronounce certain segmental contrasts, many adult speakers of African languages are highly aware of certain tonal distinctions in their languages.

Before tackling the tone system of a language, one would want to read the literature on related languages and know about the tone systems of languages in the area and come up with a basic hypothesis, e.g. Bantu languages generally have a two-tone system; Central-Sudanic languages have a three-tone system, etc.

The data needs to be sorted strictly in comparable syllable/root/word structures. Even short and long vowels should not be mixed since the tones (or tone combinations) on these structures may vary—long vowels may be considered as two tone-bearing units.

Whistling is a helpful way to hear different levels of pitch since it isolates the pitch from the segmentals. After getting into a rhythm of saying and whistling, native speakers can separate the items into different stacks according to the tone or tone melody whistled. The next step is to check through each stack for consistency. This method will also work with monosyllables!

We did not set up tone frames because previous experience in other languages had shown me that both the inserted item and the tone frame may present tonal changes from the underlying form. When working with a group of native speakers in this sort of participatory research, work with words in isolation, i.e. a 'zero' frame, even in a monosyllabic language, can serve just as effectively.

As with the segmentals, nouns and verbs should be treated separately since the tones or tonal melodies are not necessarily the same for these two word classes. In our Ngiti experience, we found that there were five possible tone patterns on VCV nouns: L.L, M.M, M.H, H.L, L.LM, whereas verb infinitives only displayed three tone patterns: M.L, M.M, and M.H.

On the basis of our findings with nouns and verbs, we first established the number of level tones in the language, the presence or absence of falling and rising tones, and we made lists of tone minimal pairs. The latter especially sparked people's thoughts, and they would come with more and more lexical items which were minimally distinctive for tone. The study of tonal changes caused by the tonal environment (tonal sandhi processes) and the study of how tone functions in the grammar, especially the verb system, would be pursued at a later stage. Trying to get involved in analyzing grammatical tone in the verb before having established the basic tonal system and the tone patterns on verb roots, can cause difficulty for disentangling the various aspects of tone in the verb.

5. Further Linguistic Research. Participatory research does not need to stop once a phonological analysis has been worked out. People generally love to discuss their language and enjoy discovering patterns in grammar, perhaps even more than in phonology and tone. Since a certain amount of work on morphology is often necessary for determining morpheme boundaries, in the Ngiti experiment we naturally moved on into morphology and other grammatical topics: nominal morphology, the intricacies of the pronominal system, verbal inflection and derivation, aspects of discourse, semantics, special S-V and V-O collocations, and idioms.

Never would we reach complete understanding on any one topic in one session. The research in many topics would stretch out over several sessions. The first time we approached a topic like verbal derivation, we would gain a certain amount of basic understanding of the topic; in the next research period, months later, we would repeat what we had found so far, and people would come with more examples, ideas, counterexamples, etc. It seemed that because their awareness had grown, in a next session they would be able to 'dig deeper'. This meant in our case of Ngiti research, sharing with the research group what I thought I saw in terms of patterns in the language, getting their feedback as well as extra examples, confirming or disproving a hypothesis, or yielding additional detail on the topic being studied. It entailed training them to do more and more of the work semi-independently. It is very satisfying to see them participate, become aware, contribute to the analysis, and become partners in the work. Not only does the analysis benefit in quality, but the people have a stronger sense of ownership which will have its positive repercussions for other aspects of the language development program. Such participatory research may also be helpful for identifying those with the potential and interest for further formal linguistics study.

6. Orthography. A practical aim of phonological analysis is a readable orthography—one which marks all relevant distinctions, which responds to native speaker intuition, and which is acceptable in the eyes of the native speakers.

Rather than working out the orthography in isolation in my office, we discussed the various options with the speakers of the language in our research group as we went along with the analysis. As their awareness of certain sound contrasts was raised, people would want to mark these distinctions in their orthography. Certain orthographic possibilities were discussed and tested out at a very early stage. Since the people had been using their Swahili-like 'orthography' when writing down the nouns and verbs, we used a 'tentative orthography' from the start—accepting cases which were straightforward, like writing *ny* for ɲ, *ch* for a palatal affricate (in a Swahiliphone environment), and some others in that category. As other more problematic sounds were checked the possible graphemes would be discussed immediately. This method helped the speakers to gradually get used to them and to respond positively or negatively early on. This approach would also make it obvious if they made systematic mistakes.

A 'Western' way of handling the decision-making process for an orthography might be to present a neatly worked-out proposal, to explain the reasons behind the choices, discuss, reason, and come to a conclusion as to what would be the best solution. However, things are more likely to turn out positively if the people concerned have 'experienced' the written language development over a period of time if their awareness has been raised and they have been fully involved in the discovery process. This can be done in such sessions of participatory research.

One aspect of psycholinguistic intuition is based on what people have learned in a language of wider communication or a national language. Their perceived ideas of correspondences between the two languages are very important. Even if the language to be studied has more distinctions than the language of wider communication, it is very important to let them 'match' the graphemes of the language of wider communication with the ones they feel are 'the same' in their language, then suggesting other graphemes for the 'extra' vowels or consonants. This way, transferability is as natural as possible. This consideration outweighs by far criteria like frequency, redundancy, or practical typewriter considerations.

If people haven't 'felt' their phonological system, they often resist writing more distinctions than they have learned in a language of wider communication, which would lead to under-representation and inconsistency in the use of certain letters.

7. Conclusion. Right from the start when a language project is planted in a community it needs to start growing roots in that community. The seeds are sown by raising the awareness of lingistic features of the language with the community of speakers..

In what follows I list some reasons why we as expatriate linguists should train in this way as much as possible:

1. The language is not ours, it belongs to the people who speak it. We should try to look at all its aspects the way the insider looks at them and not from the outsider's perspective.

2. The analysis will go faster and be of a better quality because of the feedback from the insiders.

3. The speakers of the language will benefit to the extent that they can take it in— i.e. they will be trained on-the-job to the highest of their potential.

4. The project will belong much more to the speakers of the language and hence grow deeper roots in the community, especially if done with a group of people in the area where the language is spoken.

5. More than anything else, language is close to people's hearts. It forms an important part of people's identity. People get excited seeing the richness in vocabulary and/or the patterning: singular/pluractional distinctions in verbs, logophoric pronouns, diminutives, augmentatives, etc. They may have had the idea that the national language and language of wider communication are real languages, but theirs is only a 'dialect' because it does not have a dictionary, grammar, or alphabet. Discovering these things about their language, divising and using an orthography, and the beginning work on a dictionary, shows them that theirs is also a 'language'. It affirms their identity.

For further related ideas on this approach in phonology, tone and grammar, see the series of articles by Ursula Wiesemann in *Notes on Linguistics,* 41, 43, 44, 45, 46, 47, 48, and 51.

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5th International Cognitive Linguistics Conference
Vrije University, Amsterdam, The Netherlands—July 14-19, 1997

Important dates:

July 1, 1996	proposals for theme sessions due
Sept. 1, 1996	notification of acceptance/rejection of theme-sessions: call for poster and paper abstracts
Nov. 15 1996	abstracts for papers and posters due
Feb. 15, 1997	notification of acceptance/rejection of papers and posters

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Reports

Linguistic Society of America
4-7 January 1996

Report by George Huttar
SIL—Vice President, Academic Affairs

This year's meeting of the Linguistic Society of America was held jointly with at least four other organizations' meetings, including the Society for Pidgin and Creole Linguistics and the Society for the Study of the Indigenous Languages of the Americas. I participated chiefly in the SPCL sessions; I had the impression a number of SIL members were there specifically because of the SSILA.

There were at least 19 SIL members at the meeting. I know of six who gave papers—two of whom gave more than one each. The continuing interest of many members of SIL's Mexico Branch in LSA and SSILA is encouraging (there were 6-8 branch members present), and both the branch and the individuals are to be commended.

Two sessions of general interest to SIL were the LSA Presidential Address and the symposium on LSA's guidelines for nonsexist writing:

Emmon Bach's Presidential Address, entitled 'The politics of universal grammar', was interesting for its exemplifying the current emphasis on endangered languages and putting an ethical slant to it. According to my notes, Bach said that Chomsky's approach, which (over)emphasizes the common features of all languages and treats 'the apparent richness and diversity of linguistic phenomena [as] illusory and epiphenomenal' (Chomsky's words) is dangerous to the moral and ethical side of our profession. To quote from Bach's handout:

> Linguists have a moral, ethical, political duty to support primary linguistic research, especially on endangered languages. This obligation coincides with the scientific concern to increase knowledge of languages. But the activities of the various kinds of linguists are not productive of results of equal value for the communities. Theoretical linguists produce theories. Primary linguistic research ('descriptive linguistics') produces grammars, dictionaries, recordings and analyses of texts. The latter are usually more relevant for community needs than the former. But work for academics is not the same as work for language communities.

> Mike Shaw's Principle: 'Time and resources for community-relevant research and activities should equal those devoted to community-external aims.'

Clearly there's plenty of food for thought there for field linguists as they carry out language programs. For one thing, I think we can take Bach to be saying that if a linguist produces fewer articles and other output for fellow academics BECAUSE s/he is spending time on projects of more immediate use to the community, that's not all bad.

At another point Bach expressed values very much in line with SIL's. He approvingly quoted others (Ofelia Zepeda and Jane Hill 1991) saying: 'Each language still spoken is fundamental to the personal, social and—a key term in the discourse of indigenous peoples—spiritual identity of its speakers.'

The ethical or moral aspects of the linguistic profession were even more evident in the 'Symposium on addressing bias in linguistic example sentences: Are guidelines necessary?' All the presenters, and I think all the discussants as well, agreed that the existing LSA guidelines for non-sexist usage, or something like them, are good—because they help us write more like we SHOULD write. Once again, as with Bach, people talk about how we SHOULD be carrying out linguistics. I didn't pick up any mention of the basis for these ethical standards, however—I assume it's just another example of our society's using its Judaeo-Christian heritage to influence other people's behavior, while rejecting the essentials of the heritage itself.

At any rate, I learned from most of the presenters, who had surveyed various linguistics text, etc. and found consistent major differences between the roles assigned to males and to females in sentences used to illustrate linguistic phenomena (men are much more often portrayed as taking an active part in things; women are more often portrayed as having stereotypically negative emotional traits, etc.). On the other hand, I found the last presenter's thesis that example sentences also show a heterosexist bias against gays and lesbians (by keeping the latter groups 'invisible' and therefore by implication subnormal) rather strained.

In light of the symposium and the fervor the topic of sexist discrimination in writing evokes in many of our colleagues, I am glad that SIL's Project '95 guidelines for Field Manual writing includes cautions against unnecessarily sexist language. Our newly approved archive policy invokes these same guidelines. The topic is something we should consider with regard to our regular publications from the Academic Publications Department.

Reference

Zepeda, Ofelia and Jane H. Hill. 1991. The condition of Native American languages in the United States. In Endangered Languages, R. H. Robins and E. M. Uhlenbeck, eds. Oxford/New York: Berg, pp. 135-155.

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Pan Asiatic Linguistics: The 4th International Symposium on Languages and Linguistics

Mahidol University, Salaya, Thailand—January 8-10,1996

Report by Robert E. Longacre

SIL—International Linguistics Consultant and UTA Professor Emeritus

1. General Observations. Jerry Edmondson was raconteur and attempted a summation at the end of the conference. He mentioned that 39 different countries were represented, 24 of which were Asian-Pacific. Among countries not often found at international conferences he mentioned Northeast India, Bangladesh, and Vietnam—to which I would add Saudi Arabia, the Emirates, and Jordan. The program bristles with non-Indoeuropean names and presumably signifies a conference which constituted a boost to emergent scholarship in certain parts of the world. The next conference in this series is scheduled four years from now at Ho Chih Minh City (formerly Saigon).

The prepublication report includes four volumes of preconference papers, one volume of abstracts, and a program volume. The four volumes of papers and abstracts tally out at 1578 pages—a bulk exceeded only by that of similar publications for the World Congress of Linguists which meets every five years. The paper-bound volumes are attractive with a picture of some of the older and more picturesque teak-house buildings of Mahidol University on the front and a dedication page to the reigning monarch of Thailand on the occasion of the fiftieth anniversary of his accession to the throne.

The preconference publication volumes and the grouping into sessions accord with the variety of interests represented in the conference; I give the outline of the basic four volumes below.

Vol. I Language Description
    Phonetics/Phonology
    Morphology

- Vol. II Language Description
  - Syntax/Semantics
  - Discourse Analysis
- Vol. III Language Comparison
  - Historical Comparative Studies
  - Language Contact and Language Change
  - Typology and Universals of Language
  - Dialectology
- Vol. IV Language and Related Sciences
  - Computational Linguistics
  - Pragmatics
  - Sociolinguistics
  - English as a Second Language
  - Neurolinguistsics
  - Ethnolinguistics
  - Miscellaneous

2. **Plenary sessions.** Monday's session consisted of a dialogue (or rather a sequence of two papers) by Paul Benedict and James Matisoff on 'Directions for future research in East and Southeast Asian linguistics'. The considerations were, however, wholly historical-comparative.

The complete text of Benedict's paper is not published in the conference proceedings. The paper as distributed to the participants is entitled 'Kadai Handbook: Proto-Kadai parameters'. The abstract, as published in the abstracts volume, is entitled 'Interphyla flow in Southeast Asia'. The latter posits 'three contrasting language phyla' for the region: Sino-Tibetan, Mon-Khmer, and Austro-Tai with a succinct summary of some of the characteristics of each phyla. The paper as read at the conference especially considers Kadai, a branch of Austro-Tai.

Here Benedict states his thesis: 'The historical outlines are clear enough: at an early period, ca. 2nd to 1st millennia B.C., a largely disyllabic Austro-Tai language, with a prosody apparently of pitch-accent type, came into contact with a monosyllabic tonal language: Chinese'. Benedict then posits interchange of lexical items, mainly of a cultural nature, which he sorts out somewhat as to different groups of Kadai. There were also structural influences and diffusions. Under the influence of Chinese, Austro-Tai disyllabic roots became monosyllabic, largely by 'canonical reduction on the left' and become tonal. There was also a shift 'from the verb-final order of Sino-Tibetan to the non-verb-final order of Austro-Tai'—presumably under substratum influence.

From here on in, the plot thickens. Benedict asserts that the reduction of disyllabic roots to monosyllables 'has created a vast sea of monosyllabic roots waiting to be navigated'; the only 'compass' in this navigation is the reduction on the left rule with some help from what Benedict terms 'vowel transfer' in recapturing the first syllable. He goes so far as to say 'One can only express sympathy for the navigator shipwrecked on the shoals of the treacherous seas of Kadai', since 'All in all one could well claim that there is no more complex and tricky problem in all of Southeast Asia historical linguistics than the reconstruction of Proto-Tai-Kadai'.

Matisoff's paper is entitled 'Contact-induced change, genetic relationship, and scales of comparison'. He contends that, while at shallower time-depths the comparative-historical method works well:

> At remoter time-depths, the classic distinction between genetic and other types of relationship breaks down.
>
> ...Too many alternative explanations for perceived similarities are possible: change, borrowing, areal typological converence, universal tendencies, faulty analysis, wishful thinking.

The bulk of his paper deals carefully with several of these factors: theoretical issues in establishing genetic relationships, borrowing, borrowing versus shift (including discussion of the difficult but necessary notion of substratum), sprachbund, mixed languages, 'long rangers' (problems of judging among contradictory large groupings), and finally 'linguistic stocks of Southeast Asia'. Under all of these topics, short of the last, Matisoff shows considerable catholicity of viewpoint; in regard to the last he is necessarily dogmatic. He settles for 'primitive dendrograms for Macro-Austric and Sin-Tibetan' and a third convergence (e pluribus unum) diagram for Japanese. He posits 'Macro-Austric' as inclusive of Austroasiatic, Austronesian, Tai-Kadai, and Hmong-Mien, while Sino-Tibetan includes Chinese and Tibeto-Burmese. Japanese he accounts for as a convergence of Ainuic, Autronesian, and Altaic. Under 'Desiderata for the future' Matisoff recommends computer storage on a large scale of assumed cognate sets, while cautioning against 'blind faith in the computer' ('garbage in, garbage out').

All this milieu manifested in the two papers cited led Edmondson, as raconteur, to summarize the state of historical-comparative studies in this part of the world as 'Paradise lost and Paradise regained' (hopefully, I would add!).

Tuesday's session included four papers: Bernard Comrie, 'The unity of modifying clauses in Asian languages'; Anthony Diller, 'Linguistic zero in Asia: From Panini to pro-drop'; David Bradley, 'Language policy and the typology of scripts', and Carolyn Miller, 'Application of typologies for language maintenance and loss to Southeast Asian linguistic minorities: The case of the Bru-So and Kadazan-Dusan language continua'.

Comrie's paper showed that Asian languages, unlike English and other European languages, treat relative clauses and complement clauses as essentially the same structure.

Diller's paper traced linguistic zero from Panini to Bloomfield to post-Bloomfieldian linguistics, 'critiqued some generative claims relating to the Empty Category Principle and Pro-Drop parameter as typological criteria applied across a number of Asian languages' with reformulation according to Role and Reference Grammar, and then applied some of these concerns to Thai.

David Bradley surveyed scripts across the part of the world represented in the conference—especially some rather ingenious adaptations of the Latin alphabet to languages of the region. Whatever the script, some way of indicating tone was attempted.

Carolyn Miller attempted a careful analysis of the parameters involved in language maintenance versus language loss with the Bru-So continuum in mainland Southeast Asia and the Kadazan-Dusan continuum in Sabah as cases in point.

3. Particular papers. Here my own interests and prejudices as well as the desire not to make this report excessively long enter in as limiting factors. I will mention only a few papers here.

Jerold Edmondson and Li-Jinfang presented a paper, 'The language corridor', the substance of which was that 'There was a migration pathway from Quizhou Province China leading south through Longlin country, Quangxi Province into northern Vietnam and Laos'. In his survey work on the frontiers of China, Edmondson found linguist remnants of peoples scattered along this assumed corridor and adds some names to the linguistic map. He believes that he finds evidence here for 'an ancient route of escape used by people fleeing war and famine'.

Arthur Abramson's paper, 'The stability of the Thai three-way voicing distinction in conversation' was a careful instrumental study establishing that the Thai contrast between voiceless, voiced, and voiceless aspirated persisted even in spontaneous running speech not just in staged laboratory experiments.

Zhu Yunxia's paper, 'An analysis of "Tongzhi" or "Circular letter" genre in Chinese business' was a first rate piece of discourse analysis of a standard type of hortatory discourse used in mainland China.

Lawrence Reid's paper, 'The Tasaday tapes' espoused what is by now a minority viewpoint—that the Tasaday group on Mindanao **really** were isolated for some time from other surrounding people groups. Tom Headland has spearheaded attempts to refute this thesis.

Hazel Wrigglesworth's paper, 'The function of rhetorical devices in Ilianen Manobao formal storytelling' was of the quality that we have come to expect from her—clear and persuasive.

I close with mention of a paper that stole the show, viz. Kirk Person: 'Thailand's "Straight-talking" monk: A discourse analysis of the hortatory speech of Phra Phayom Kalayano'. The general interest in this paper was such that newsmen and TV cameras were present at the giving of the paper. It was on a popular subject and was well-delivered.

4. Significance for SIL. By my count some ten SIL members participated, of which six brought papers. It was gratifying to see Carolyn Miller in the role of speaker at a plenary session and to watch Kirk Person's stealing the show with his discourse analysis of the sermon of a Buddhist monk.

Even more gratifying was the evidence of developing linguistic scholarship and competence among participants from Asian countries. It is resources of this sort which we will need to tie into in the years to come as we interact with such people.

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Eighth Annual Conference on Linguistics and Literature

University of North Texas, Denton—February 2-3, 1996

Report by Craig Soderberg
Texas SIL and University of Texas, Arlington

The conference program consisted of papers ranging from theoretical linguistics and literary criticism to creative works. Of the more than 260 papers submitted, only 120 were selected for presentation. There were many international presenters including some from England, Finland, Japan, and Korea. Each day, there were four sessions running concurrently and starting every ninety minutes. Each session had four presenters.

I attended only the sessions that were directly related to linguistics. In the first session, Adrian Pilkington of the University of Hertfordshire (England) presented a paper applying relevance theory to poetics. He used the relevance theory developed by Sperger and Wilson (1995) which states that there must be optimal balance between cognitive effects and minimum processing efforts.

My own paper, 'Quotation formula and utterance significance for "The Fisherman and His Wife,"' illustrated that there is relationship between Quotation Formula (QF) type, QF position and utterance significance. LOW SIGNIFICANCE UTTERANCES mention both speaker and addressee and are given in preposed QF format. LOW-MEDIUM SIGNIFICANCE UTTERANCES mention speaker only and are given in postposed QF format. HIGH-MEDIUM SIGNIFICANCE UTTERANCES mention speaker only and are given in interlarded QF format. HIGH SIGNIFICANCE UTTERANCES mention neither speaker nor addressee and are given in the nul QF format. The level of significance of the utterance corresponds to the emotional, textual, and participant tension in the episode. Thus higher tension is reflected in the use of higher significance utterances.

David Silva, a professor at the University of Texas at Arlington, gave a very well-organized paper on the social, stylistic and linguistic factors that contribute to the process of vowel elision in the speech community of Nordeste, Sao Miguel (Portuguese). Silva found that syllable structure, vowel type, environment, speech style (i.e. casual vs. formal), and speaker gender all influence the probability of vowel elision in this dialect.

Carole Nix, a Ph.D. student in Humanities from UTA, presented a paper entitled 'Talking to strangers: Children's conversational openers on the

Internet'. She did a politeness analysis of children's requests for Internet penpals. In her study, she found that while adult women tend to be more conventionally polite than men, the boys in the study were more conventionally polite than the girls. Boys were more attenuated in requests and girls threatened the reader's need to be approved by others. This may result from the personal versus professional activities among children and the adults to whom they were compared, an age-grading effect, or changes in gendered discourse patterns over time.

Taehong Cho, also from UTA, presented a paper, 'On deriving consonant clusters in Korean consonant phonology'. He concluded that both the amount of sonority and the structure of the place node play a great role in determining heterosyllabic consonant clusters in Korean and that sonorant node spreads in rules of sonority assimilation. He used the Sonority Government relationship developed by Rice to account for his data.

Haj Ross, University of North Texas, gave an insightful and humorous comparison of the negative polarity items: 'anything' and 'squat'. Ross, in collaboration with Paul Postal, made five generalizations about 'squat'. He called them 'squatatives'. Squatatives have the following properties:

1. don't go in subject position
    a. He doesn't believe anything/ *squat happened.
    b. I deny that anything/ *squat happened.

2. can't be modified.
    a. He didn't say anything else/ *squat else.
    b. He doesn't know anything / *squat important.

3. don't like 'locative contexts': cf. We don't live behind anything/ *diddlesquat.

4. won't 'possessivize': cf. They don't calculate the area of anything/ anything's area/ *squat's area.

5. want to be in object position: cf. He knows squat about calculus./ *Squat does he know about calculus.

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Third Annual UTA Student Conference on Linguistics
University of Texas, Arlington—February 9, 1996

Report by Craig Soderberg
Texas SIL and University of Texas, Arlington

This conference was primarily attended by students and faculty of the University of Texas at Arlington, although anyone was welcome to come. All papers were presented sequentially with no concurrent sessions. The paper topics ranged from phonology and grammar to sociolinguistics. Each presentation was twenty minutes followed by ten minutes of questions.

Joe Friberg presented the paper, 'Aramaic biradicals and feature association principles'. In this paper, Friberg revealed that a large portion of the Aramaic biradical verb data violate the simple left-to-right directional mapping proposed by McCarthy (1979). Friberg proposed an alternative analysis to this problem by capturing the motivating force in Feature Association Principles (constraints) using an Optimality Theoretic (OT) model.

Janet Wilson's paper, 'English and Hausa loan-words in Kuche' sought to answer two questions: what vocabulary items are borrowed from Hausa and what do the Hausa loan-words have in common. Wilson found that loan words fall into two categories: those that fill in the 'gaps' in the language (plants and animals) and those that duplicate 'perfectly good Kuche words'. Wilson's data supports Myers-Scotton (1993) assertion that native words can sometimes be squeezed out to make a place for borrowed words.

Deborah Johnson's paper, 'Intertextuality in political debates: What do we need to know to understand them?' revealed that few political science scholars have considered the language or message contents of political debates.

Carole Nix's paper, 'The case of the missing link: Coherence in mystery narratives written by children' examined the ability of children to develop participants, props and plots in order to produce a coherent narrative. Using the Longacre (in press) method of discourse analysis, Nix identified possible explanations for the lack of coherence on child narratives.

Barbara Cameron's paper, 'Two cases of high functional load in Sierra Leone Krio' revealed that Creole languages characteristically have lexicons that are reduced in volume of words from those of the contributing languages. The effect of the reduced lexicon is the high functional load of grammatically important words. Multiple meanings and uses of a single word can cause ambiguity but Cameron's study demonstrates that the reduced lexicon of this Creole language does not diminish the capability of speakers to communicate adequately; rather syntactic techniques of compounding, word order and word combinations, as well as meaning in context, tend to compensate.

Ernie Rickett's paper, 'Text talk: Interdiscursivity and intertextuality in the Christian letter tradition' illustrates how interdiscursivity and intertextuality aid in the understanding of the structure and purpose of early letters. Ricketts discusses how the use of the early letter writing format continues today and why such a structure developed. He used Greek letters from the fourth century BCE up to the first century AD as examples.

In my paper, 'Belief convergence, dominance and accommodation in mixed gender conversation', I illustrate how underlying belief convergence (similarity of belief on a given topic) has a dramatic effect on the occurrence of certain speech behaviors. In belief convergent environments, males and females interrupt each other more, ask more questions and give more listener-back-channel responses because of their conversational relaxedness and their eagerness to be conversationally engaged with each other. These behaviors are not a result of the male dominance hypothesis proposed by Thorne and Henley (1975).

Dan Morgan's paper, 'Assimilation and underspecification in Ndut suffixation' revealed the applicability of underspecification theory for explaining place node assimilation of the initial consonant in the Ndut suffix. Morgan's paper used the Padgett (1991) model of feature geometry which has [continuant] under the place node during the spreading process.

Doug Inglis's paper, 'An image schema analysis of UNDER' analyzed the polysemy found in UNDER using image-schema from Cognitive Grammar. He found that this semantic abstraction is useful in that it groups concepts into subdomains that share internal extensions (polysemy) and external extensions (metaphor). Abstract schemas can also be helpful in semantic analysis by providing a reduced and more efficient use of image-schema.

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Africa Area Linguistic Consultants Seminar

Kenya—October 2-20, 1995

Report by Klaus Wedekind
SIL—Ethiopia Group

According to concluding remarks by participants of the seminar, it was appreciated that the seminar had allowed for (a) input from 'distinguished' guest speakers, (b) updates in various fields of linguistics, (c) exchange of views between SIL staff from different entities, (d) sharing of experience and mutual encouragement, and (e) a series of discussions leading to explicit recommendations—including statements about a future AFA linguistics coordinator. Some of these recommendations are excerpted below:

Orienting and equipping Junior Members in language programs: We recommend that every entity provide each new language team with an orientation course or tutorial before they proceed to their allocation. This course should include:

> Orientation to African linguistics, in particular typological characteristics of the language family of the language of assignment;
>
> Materials to refresh and update the team's knowledge of relevant aspects of linguistic theory and methods, as deemed necessary by the linguistic coordinator. Some phonetic practice in transcribing sounds (in particular vowels) likely to be encountered in the language of assignment is strongly suggested.

As much as possible, specific modules of the course (e.g. modules on tone, vowel harmony, word order, morphology) should be prepared by specialists in these areas and shared across entities. (It is understood that these may be modified and adapted to suit the needs of individual entities.)

New language teams should also receive orientation to reporting and accountability procedures and structures in the entity, in particular the handling of the SPAR (Strategic Planning and Review) system and the role of linguistics consultants and the linguistics coordinator.

We recommend that the administration of each entity establish a relationship between a linguistics consultant and a language team at the time the team is assigned to a language project, and that this relationship is expected to be ongoing throughout the preparation phase of the project. New language teams should receive consultant help on the average of every six months during the first three years of their language program to ensure their developing understanding of the language studied.

We recognize that linguistics consultants and entity administrators will have to take the primary responsibility to see that this recommendation is implemented.

Publishing the results of our research: We recommend that greater attention be given to the publication of word lists, analyzed data in the form of paradigms and comparative syntactic constructions, and written descriptions of the languages we have the privilege to study. SIL language teams should expect to publish at least one article on the language they are studying in a refereed journal. (This article may be co-authored with a linguistics consultant.) Each team should also produce a written sketch of the language, including the phonology (segments and tone), verbal and nominal morphology, main and subordinate syntactic constructions, and a study of major discourse features. In the event that there are already published descriptions of the language which equal or exceed the above items, the team should write a review of this existing work rather than duplicate it. In this case, the team should also be encouraged to publish further linguistic research on the language.

We recognize that linguistics consultants will have to take the initiative to see that this recommendation is implemented; we further recognize that success will also depend on support from the entity administration.

Training and stimulating of SIL Linguistics Consultants: We recommend that linguistics consultants seminars be organized every two years to alternate between AFA level and sub-region level (West Africa, Central Africa, Eastern Africa). These seminars should include technical updating and training in interpersonal skills. The technical updating may include lectures from an internationally recognized linguist and presentations by the participating consultants.

We recognize that the AFA Linguistic Coordinator will take a major role in making sure these seminars take place.

Training of language teams: In view of the facts that (1) tonal and/or accentual phenomena play an important role in virtually all languages of the world; (2) an adequate analysis of tone and stress is often crucial in developing an effective orthography; (3) these phenomena have proven to be exceedingly difficult for our teams to analyze, we recommend that SIL training programs include adequate training on the analysis of prosodic phenomena, with particular emphasis on tone and stress. This training can be formulated in terms of learning outcomes and assessment criteria worked out by the International Linguistics Coordinator in association with linguistics consultants from SIL areas where difficulties in analysis have been observed.

We recognize that the current training sequence is already rather long and that there are good reasons for not extending it further. We suggest that some current aspects of advanced phonology training be reevaluated as possibly having less priority than tone and stress. We further suggest that some currently redundant aspects of the training program (including membership orientation programs, field training programs, and field entity orientation programs) be condensed.

In addition to participation by consultants from most SIL Africa Area entities, the Africa Area Director and the International Linguistics Coordinator, the following participated from various universities:

Chumbow, Prof. Dr. Bebar Samuel, University of Buea, Cameroon
Daniel Teclemariam, Ato, Curriculum & Research Centre, Asmara Eritrea
Dimmendaal, Dr. Gerrit, Department of African Linguistics, Leiden University
Heine, Prof. Dr. Bernd, Institut für Afrikanistik, Universität zu Köln
Katamba, Prof. Dr. Francis, Department of Linguistics, Lancaster University
Kembo Sure, Prof. Dr., Moi University, Kenya
Moges Yigezu, Ato, Department of Linguistics, Addis Ababa University, Ethiopia
Ndamba, Prof. Dr. Josué, Brazzaville, Congo
Payne, Dr. Tom, Dept. of Linguistics, University of Oregon
Whaley, Dr. Lindsey, Program in Linguistics, Dartmouth College

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Reviews of Books

Grammatical theory in the United States from Bloomfield to Chomsky.
By P. H. MATTHEWS. 1993. Cambridge studies in linguistics, 67.
Cambridge: Cambridge University Press, 1993. Pp. xiv, 272.
Hardcover $59.95, paper $24.95.

Reviewed by JOAN BAART
SIL—West Eurasia Group

Studies of the history of linguistics—if they are skillfully done—may be valuable for many reasons, but one reason is that they show how linguistic ideas were conceived and developed over time. In this way, they shed light on issues that concern all students of linguistics, not just a few eccentrics who are engaged professionally as historians of linguistics.

In beginning this review, it must be said that I found Matthews' book difficult to read, except for the first chapter (pp. 1-50), the largest part of which is an overview of American linguistics between 1910 and 1990. It serves to set the stage for the discussion in the remaining three chapters. Certainly, the difficulty comes from the fact that, while its subject matter is complex, the book consists of just a few very long chapters, that in turn are divided into very long sections, virtually without any further subdivisions. There is only one way to read this book (at least for me) so as not to lose the thread of the argument, and that is to read each chapter in one go, without interruptions. That is what I had to do and I did find it rewarding in the end but I do not think I recommend this book to beginning students of linguistics.

The book's major arguments hinge on a careful reading of, in particular, the works of Bloomfield and Chomsky. Its most exciting pages are those where M engages in exegesis of a number of texts by these two great American linguists.

The key sections of Ch. 2 ('Bloomfield's morphology and its successors'; pp. 51-110) point out the major discontinuities between Bloomfield's theory of language in general and of morphology in particular on the one hand, and the ideas of his immediate successors (the 'Post-Bloomfieldians') on the other. M shows how the development of the newer, Post-Bloomfieldian model of the morpheme ('a class of allomorphs in complementary distribution'; p. 89) should be understood in the context of a changing philosophy of linguistics in general.

This latter point was apparently not fully appreciated at the time. People like Harris and Hockett presented their proposals about morphology as what can be called 'theory-internal' modifications, necessitated by inconsistencies in the older, Bloomfieldian model. However, M shows that Bloomfield's theory, when properly understood, does not have these inconsistencies. In order to show this, he has to reconstruct Bloomfield's theory of language, and in carrying out this task he makes the interesting move of drawing evidence from Bloomfield's early work (Bloomfield 1914) in order to throw light on obscurities in his later work (in particular Bloomfield 1933). The move is surprising, because the earlier work dates from before Bloomfield's conversion to structuralism and behaviorism and is hardly known nowadays. At least to this reader the argument that M sets up is convincing.

Bloomfield's theory, then, either was misunderstood by his successors (which is a real possibility; pp. 77f.), or it no longer made sense, given the shifts that were taking place within the more general framework. These shifts included the rise of 'distributionalism', which held that a linguistic description should be based on form only and not on meaning, and that the investigation of meaning should be put off until a formal description was completed (p. 84). They also included the assumption that rigorous techniques of classification were needed if one were to demonstrate the validity of a grammar describing a set of linguistic data (pp. 82f.). They included the decision to model the morpheme on the phoneme, as by then a rigorous and successful theory of the phoneme had already been developed (p. 81).

What results is a view of grammar as 'a stock of morphemes and the arrangements in which they occur' (p. 80; Hockett 1958:137), and a view of the morpheme as a class of allomorphs in complementary distribution, just as the phoneme was seen as a class of allophones in complementary distribution (p. 89).

The amazing thing in the history as it further unfolds in M's book is, that by the time that most of the central assumptions of the Post-Bloomfieldians, including their concept of the phoneme, were undermined by Chomsky's generative grammar, at least some of the consequences of these assumptions, including the Post-Bloomfieldian morpheme, were able to survive, even to this day.

M speaks of 'the inertia of ideas' (p. 93), which is a concept that recurs time and again in his book. Bloomfield drastically revises his philosophy of linguistics, but at the same time much of the theory that he held in his younger years stays with him. The Post-Bloomfieldians leave parts of Bloomfield's theory behind while sticking rigorously to other parts. Generative grammar puts linguistics on an entirely new foundation, yet absorbs many of the notions of earlier generations.

M observes that by 1965 Chomsky had suggested basing the treatment of inflection on the traditional word-and-paradigm model and had criticized the morpheme-based approach in no unclear terms (p. 92; Chomsky 1965:171ff). It is perplexing then, that what he and Halle adopted in their treatment of English phonology a few years later was exactly this morpheme-based approach (p. 93; Chomsky & Halle 1968).

Of course, there are still members of SIL around who, from the 1930s onward, have been witnesses or even participants in the events that M relates. In fact, they would be in a much better position than I am to review M's exegesis of Bloomfield and his interpretation of how theoretical linguistics developed in America. Pike figures in this book, but is effectively removed from the scene as a major player in the following way (pp. 25f.):

> This program [of Post-Bloomfieldian linguistics] was criticised, especially—where phonology was concerned by Pike... But Pike was the linguistic director of a society of Bible translators; and, in replying to him on this and related matters, Hockett saw him as conditioned by his role in training missionaries for field analysis.

And, speaking about the emergence of different linguistic schools in the 1960s (p. 28):

> Pike and his missionaries formed another group–numerous, though historically and intellectually less important.

I choked at first on reading these passages but after some reflection there is little one can say against them. M is concerned with the history of linguistic theory, and Pike and SIL have always been committed to field work and its practical applications. Not that they do not construct theories, but I guess that their theory construction was driven by concerns that at least in part diverged from what was found important and exciting at the academic institutions of America at one time or another.

This brings us to Chomsky, the other great protagonist in M's story. About his followers it is remarked that for everyone who takes the trouble to think his ideas through, there are a dozen, ('especially in Chomsky's own to an outsider overwhelmingly conformist country'), who recite and teach them (p. 211). It is ironic that this should be said of a man who, in view of both his linguistic and political works, can hardly be called a conformist himself.

I will be brief about the last two chapters of the book, even though they are no less instructive than the first two. Ch. 3 ('Distributional syntax'; pp. 111-183) studies the influence of distributionalism on Chomsky's theory of transformational grammar, in particular during the period up to the early 1970s. As in Ch. 2 but now for syntax, M points to an important discontinuity between the ideas of Bloomfield and those of the Post-Bloomfieldians, and a continuity between them and the ideas of Chomsky.

What was retained from Bloomfield was the principle of immediate constituents, but otherwise the emergence of distributionalism meant a break with Bloomfield. For Bloomfield forms could not be separated from meanings. Even in phonology analysis could not proceed without a knowledge of meanings (p. 114). For his successors, to proceed in abstraction from semantic considerations became a requirement. This led to a theory of 'syntax with basically two tasks: one to establish the hierarchical structure of sentences and the other to sort the units of this hierarchy into classes with equivalent distributions' (p. 111). The stage was then set for Chomsky, whose genius and originality are apparent on many pages of M's book, but whose concepts of a language as a set of sentences, of a generative grammar, of phrase structure grammar, constituent trees and transform-ations, were built on ideas of his predecessors.

Finally, Ch. 4 ('Chomsky's philosophy of grammar'; pp. 184-252) is concerned with the evolution of Chomsky's general ideas. One particularly interesting aspect here is the fact that Chomsky has himself on several occasions spoken about what he did and did not believe in earlier stages of his career. As it turns out, he has not always been accurate if we accept a natural interpretation of the evidence that M adduces.

A major theme in this chapter is the 'innateness hypothesis': the idea that a child genetically inherits a general knowledge of language, and the further idea that the goal of linguistics is to characterize this inborn knowledge. In the last couple of decades, these ideas have come to be presented to many new generations of students as undisputed facts.

I just received a brochure advertising a series of documentary videos about 'The Human Language'. The brochure has a summary of the film's contents where it says things like: 'Do we learn language by imitating our parents? Linguists say no. It's the imitation theory versus the innateness theory.' And: 'Lila Gleitman explains that while the French child is not born knowing French, we are all born knowing an essential something. A system.' I have not seen the videos. Perhaps they are less tendentious than the brochure. What the brochure depicts as an established fact and a result of linguistic investigations, is of course not the outcome but only the guiding hypothesis of a certain linguistic research program. As matters still stand as per today, says M on the last page of his book, Chomsky's program is based on faith. A faith that some have chosen to accept, while others can only regard it with awe.

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A concise introduction to syntactic theory: The government-binding approach. By ELIZABETH A. COWPER. 1992. Chicago: University of Chicago Press. Pp ix, 205. Cloth $59.95, paper $15.95.

Reviewed by CHARLES PECK
SIL—Waxhaw

Cowper's book is a textbook for first semester upper-level college or beginning-level graduate course in syntactic theory. It is written simply and has adequate examples and discussions. It has a brief bibliography at the end of each chapter, but it does not have any problems or topics for students to study, so anyone who uses this text to teach a course will have to consult the items in the bibliographies for more material to talk about and to give students assignments.

The first chapter is an introductory survey of Chomsky's theories from the phrase-structures and transformations of the 60's, through the advancements of the 70's and 80's, to Chomsky's most recent 'Principles and parameters' approach.

The second chapter discusses the principles of phrase structure, including the relationship between the phrase type and the head of the phrase. Jackendoff's X-bar theory is used to account for the layering in the English Noun Phrase and in coordinate structures. X-Bar theory is extended later in the book to other types of constructions.

Chapter three deals with Thematic Relations and θ-Roles, which treat the incorporation of case grammar and case frames into the framework of clause analysis. The θ-Role rules assign θ-Roles to the Noun phrases in a clause. This chapter also introduces the semantic decomposition of verbs.

Chapter four follows with a development of semantic components and role assignments—that is, the syntactic knowledge associated with each lexical word. Cowper shows how θ-Roles take over the role of earlier 'strict categorization' in verbal constructions and in nominal constructions, eliminating the need for 'strict categorization'. Finally she discusses the status of the head of a construction and proposes that the head of a sentence is the 'inflection' in the sentence; it is the only syntactically obligatory part of the sentence (the rest of the sentence is demanded by the semantic well-formedness requirements). So 'S' as the initial node of a derivation tree will be replaced by I^{max}, or as IP in following chapters (IP ==> NP I' and I' ==> INFL VP). INFL includes -tense and +tense, where '-tense' means 'infinitive' and '+tense' means finite clauses with tense and agreement markers.

Chapter five begins the examination of the movements of NPs, including the passive movement and movement of NPs from inside infinitival and non-infinitival complement clauses following such verbs as 'be likely' and 'seem'. This leads into the rules for NP movement, using X-bar theory to preserve proper structure and the theory of traces to regulate anaphors.

In chapter six Cowper develops the principles of government theory, which includes rules for nearness between governing and governed, the requirement that all lexical noun phrases must have some assigned role, and the requirement that every lexical noun phrase be adjacent to some non-nominal, such as INFL, Verb, or Preposition, in the derivation tree.

Chapter seven considers WH-words in English, both interrogative and subordinating. Cowper posits a new top node, CP ==> COMP IP, (or CP ==> COMP C' and C' ==> C IP), in which the COMP is ±WH-words, into which WH-words can move if it is -WH. Then come the problems of the long distance movement of WH-words from complement and dependent clauses in long, awkward sentences. The theory of subjacency conditions and bounding nodes are elaborated here.

In chapter eight, Cowper unifies the movement rules under a 'Move α' rule. Here the X-bar theory, the principle of recoverability, the θ-criteria, the subjacency principle and the c-command on anaphors cover and constrain the 'Move α' rule.

Chapter nine continues the intricacies of long-distance movements of WH-words in the long, awkward, convoluted sentences that this theory of syntax likes to use. This all leads to refinements in the theory of traces and antecedent government.

Chapter ten considers lexical anaphors and the relationships between antecedents and anaphors in reflexive and reciprocal clauses, which add refinements of government and binding theories.

Chapter eleven considers the differences between lexical and functional categories. Lexical categories occur in N, V, and A roles. They belong to open classes and have lexical meaning. Such nodes are recursive. Functional categories, on the other hand, occur in COMP, INFL, DET, NEG, and AUX roles. They belong to closed classes and have no substantive meanings. They have no θ-roles and are not recursive. This chapter also discusses the separating of 'INFL +tense' into 'tense' and 'agreement' categories.

Chapter twelve, the last chapter, sums up the book in a unified approach using 'subjacency condition' and 'government (selectional restrictions)'. Finally Cowper introduces Chomsky's barrier theory which covers the problem of blocking nodes. The book leaves the reader with the challenge that not everything is settled yet; there is still work to be done.

This book is not a reference book. One can study almost any part of the book too carefully and begin to ask oneself, 'Wait a minute, where did that come from?' It is a rapid selective sampling of various works brought together into a coherent theory. A serious reader needs to consult the original papers and books to get a fuller picture.

There is no list of abbreviations in the book and not all the abbreviations are listed in the index. I tried to find an exact definition of a certain term but without success.

Chomsky's latest 'Principles and Paradigms' approach is mentioned at the end of the first chapter but is not treated any further in this book.

Enough of criticisms! If you want a quick overview of what is going on in Generative Linguistics up to about 1991, this is the book for you. If you want to get started in studying that theory of linguistics, this is also the book with which you should start.

[Charles Peck, 6415H Fellowship Circle, Waxhaw, NC 28173]

Germano-European: Breaking the sound law. By TONY D. GRIFFEN.
1988. Carbondale: Southern Illinois University Press.
xxiii, 271 pp. Cloth $29.95

Reviewed by MALCOLM ROSS
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The Germanic languages (German, Dutch, Friesian, English, Danish, Norwegian, Swedish, and Icelandic) are all descended from a single ancestor language, Proto Germanic, which is in turn descended along with many other languages from Proto Indo-European, the language ancestral to the Indo-European language family. According to more conventional Indo-European scholarship, Proto Germanic underwent a set of sound changes known as 'Grimm's Law', so that some of its consonants correspond to those of Proto Indo-European as follows:

(1) Proto Indo-European	*bh	*dh	*gh	*b	*d	*g	*p	*t	*k
Pre-Germanic							*f	*θ	*x
Proto Germanic	*b[β]	*d[ð]	*g[ɣ]	*p	*t	*k	*f	*θ	*x
*(V,R [-stress])_(V,#)							*b[β]	*d[ð]	*g[ɣ]

Also shown in (1) is a 'sub-law' according to which Proto Indo-European **p, *t, *k* (or more precisely Pre-Germanic **f, θ, *x*) became Proto Germanic **b, *d, *g* (phonetically probably voiced fricatives) after a vowel or sonorant and before a vowel or word-finally, except immediately after a Proto Indo-European stressed syllable. This sub-law is known as 'Verner's Law'.[1]

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[1] I would like to thank Leo Connolly, Charles Grimes, Gunnar Olafur Hansson, Harold Koch, and David Stampe, who answered my questions and offered their views on various matters

The ancient written language which is conventionally held to best preserve the Proto Indo-European consonants is Sanskrit, the literary and liturgical language of Hinduism, whilst the most conservative Germanic language was Gothic, which is now extinct. Some examples of the correspondences which result from Grimm's Law are illustrated below:

Sanskrit		Gothic	
bhrātar	'brother'	*brōθar*	'brother'
dhar-	'hold'	*darian*	'carry'
dvau	'two'	*twai*	'two'
pad	'foot'	*fōtus*	'foot'
tvam	'thou'	*θu*	'thou'

We can see Verner's Law in operation if we compare the words above for 'brother' with those for 'father': Sanskrit *pitar*, Gothic *fadar*. Sanskrit is said to reflect Proto Indo-European stress placement and it is the first syllable of ***bhrātar*** but the second of *pitar* that is stressed: hence, Proto Indo-European **t* becomes Gothic *-θ-* by Grimm's Law and Gothic *-d-* [-ð-] by Verner's Law.

Together, these two laws encapsulate the major innovations which are said to set the Germanic languages apart as a subgroup of Indo-European. They are also the central topic of the book under review here. Griffen's claim is basically that on our present-day knowledge of phonetics and phonology and especially of sound change, the changes reconstructed as Grimm's Law are utterly unnatural and should be stood on their heads, giving the reconstructed phonemes in (2).

(2)	Proto Indo-European	*b	*d	*g	*p	*t	*k	*p^h	*t^h	*k^h
	Proto Germanic	*b[ß]	*d[ð]	*g[ɣ]	*p	*t	*k	*f	*θ	*x
	*(V,R [-stress])_(V,#)							*b[ß]	*d[ð]	*g[ɣ]
	Proto non-Germanic	*bh	*dh	*gh	*b	*d	*g	*p	*t	*k

On Griffen's interpretation, it is Proto Germanic that was conservative, retaining the voiced and voiceless unaspirated stops of Proto Indo-European unchanged, while most non-Germanic languages share the set of innovations shown above. This implies that these non-Germanic languages

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related to this review (but not to the book itself). They share no responsibility for the views I express here, however.

are descended from a single language which we may call Proto non-Germanic. (Griffen re-labels Proto Indo-European as 'Proto Germano-European'—hence the title of his book—and Proto non-Germanic as 'Proto Indo-European', but I will not use these unfamiliar relabelings here.)

Griffen's revision of the Proto Indo-European consonant system resembles another reinterpretation, 'the glottalic theory', to which I return below. The reader will note that there has been a long gap between publication and the present review, doubtless because this book on a rather abstruse topic has been sitting on the review editor's desk (not to mention a year on mine) waiting for a reviewer. More curious is the fact that I have not found a single review of the work in any relevant journal to which I have access. There are several likely reasons for this. One is that Griffen's theory is at odds with **both** current theories (the conventional and the glottalic), so he places himself on the sideline of current controversy. Another is that this is a rather curiously presented work. It has a highly specialized theme, yet its style would make it a suitable undergraduate text. Griffen writes lucidly and simply, explicating presuppositions which a specialist work would normally omit. This makes for easy reading, although repetitiousness sometimes tried my patience. The theory of 'dynamic phonology' is important to the book, and in the process of presenting it Griffen provides one of the best introductory explanations of articulatory phonetics that I have read (section 3.2). He also provides introductory material to various aspects of historical linguistics.

Although this is an odd work, both with regard to what it presents and how it is presented, it is also intriguing and stimulating reading. I am a historical linguist but not an Indo-European specialist (hence, perhaps, my temerity in writing this review), and this book has caused me to think about a number of questions and the interconnections between them that are clearly relevant to the reconstruction of dead languages, even if Indo-Europeanists may find Griffen's conclusions impossible to accept.

Chapter 1 introduces the concept of the sound correspondence in historical linguistics and its use in reconstructing a proto language, and outlines some of the ideas covered in the rest of the book.

Chapter 2 outlines the history of the discovery of Indo-European sound correspondences, culminating in the postulation of Grimm's and Verner's Laws. It ends with a presentation of Griffen's objection to Grimm's Law. He points out that the Law, summarized in (1), entails an across-the-board fortition ('provection' in Griffen's terminology) of Proto Indo-European obstruents in German, an occurrence which is phonetically and phonologically much less likely than a lenition. It is far more likely than an across-the-board lenition occurred, and this requires us, Griffen says, to revise the reconstruction of the Proto Indo-European obstruents to (2).

Although I share Griffen's assumptions about the relative probabilities of fortition and lenition, I do not think it is entirely logical to assume that because lenition is much more likely than fortition, fortition did not occur. Widespread fortitions do sometimes occur (and are therefore reconstructible): the High German consonant shift is a widespread fortition, although its outcomes are admittedly more complex than those of Grimm's Law.

In Chapter 3 Griffen criticizes segmental approaches to phonology and summarizes his proposed substitute, dynamic phonology (the theory is set out in more detail in Griffen 1985; its major characteristic is that it places strong emphasis on the use of phonetic evidence and very little on mental representation). His basic claim is that conceptualizing utterances as sequences of segments does not do justice to what our articulators actually do: for example, the tongue position for a vowel is already in place when the preceding (syllable onset) consonant is articulated, so that the minimum segmentable entity is the syllable. As Griffen recognizes, this places him close to the London School of J. R. Firth in the 1940s and 1950s. In Chapter 4, dynamic phonology is applied to a longstanding problem of diachronic phonology. Historical phonologists have long recognized that consonants often undergo change along the 'fortis-lenis' scale. For labials, for example, this ranges from the most lenis, the voiced fricative [ß], through the voiced stop [b], the voiceless stop [p], the aspirated stop [p^h], the affricate [pf], to the most fortis, the spirant [f]. Traditional phonology, however, cannot incorporate this scale, since each pair of sounds along it is distinguished by a different binary feature, and there is no principled relationship between the features. Instead, the scale needs to be characterized in terms of a single phonetic parameter, and the author makes a principled argument in dynamic phonological terms as to why this parameter must be aspiration, or the air pressure which builds up in the larynx just before the consonant is released (p. 150). This brings him back to a more detailed restatement of the arguments for (2), based on across-the-board decrease in aspiration, then to some examples of Griffen's revised Proto Indo-European reconstruction, and finally to a rearranged Indo-European family tree. This tree divides Indo-European into two groups—non-Germanic (Griffen's new 'Indo-European') languages, which reflect the innovations shown in (2), and Germanic and Armenian, which do not.

A few comments on the substance of Chapter 4 are in order. First, the fortis-lenis scale is a phonologist's artifact, created by putting a number of often occurring sound changes into sequence. It is true that the sequence of lenitions $p > b > \beta >$ zero (where zero represents total loss of aspiration) is common cross-linguistically. But it is also true that $p > \beta$ occurs directly, and so does $p > 0$. And the fortitions in the opposite direction are decidedly less common. On the other hand the fortition sequence $p > p^h > pf > f$ is reasonably common, while the opposite lenitions hardly ever (or never) occur. It is also puzzling that f seems often to become zero (does zero here represent a maximum aspiration which, so to speak, blows the obstruction away?). Thus, while Griffen's characterization of the scale as aspiration-based is fine, the real basis of the scale itself in diachronic phonology is less simple than it appears. It consists rather of two scales—one lenitive, the other fortitive—both beginning with *p*, plus various other sound changes which are less than obvious.

Another problem with the scale is that Griffen puts the allegedly murmured Proto Indo-European stops like **bh* in the position where other phonologists would put voiced fricatives like β. This decision, which is crucial to his reinterpretation of Grimm's Law, receives (as far as I can see) no justification in the book.

Incidentally, given that the book appears to be written for non-specialists, it is a little irritating both in Chapter 4 and elsewhere that the traditional Indo-European terms 'mediae' and 'tenues' are used respectively for voiced and voiceless stops.

There is a serious technical problem with Griffen's revised family tree (p. 190). He divides Indo-European into two groups—non-Germanic and 'Germano-Armenian'. The non-Germanic group is justified by the fact that all its member languages reflect the innovations in (2), which presumably occurred in their common ancestor, Proto-non-Germanic (Griffen's new 'Proto Indo-European'). But the Germano-Armenian group is completely without justification as the Germanic languages and Armenian share no innovations—they share only retentions from Proto Indo-European, i.e. they are both conservative. To be consistent, Griffen's tree should distinguish three groups—non-Germanic, Germanic, and Armenian.

Chapter 5 gives some brief 'corroborations' of Griffen's reinterpretation of Grimm's Law and of the family tree. First, he points out that Germanic and Armenian are widely separated and apparently on opposite sides of the more limited area occupied by early Indo-European. He appeals to the theory of relic areas in dialectology to support a claim that the non-Germanic innovations in (2) affected a large area in the center of the early Indo-European dialect network leaving Germanic and Armenian in conservative isolation. At least this is the interpretation that the theory of relic areas ought to lead to, but again (p. 201) Griffen links them together into an unjustified Germano-Armenian group.

His second 'corroboration' is the glottalic theory, propounded independently by Hopper (1973) and by Gamkrelidze and Ivanov (1972). The latter scholars presented their findings in a massive Russian work recently translated as Gamkrelidze and Ivanov (1994). Their 1990 article provides a readable summary. The glottalic theory posits the reconstruction in (3), and Griffen's theory in (2) is more similar to (3) than to the conventional theory in (1). The stops symbolized as *p', *t' and *k' were allegedly glottalized, i.e. ejectives. Whether the Proto Indo-European voiced stops were murmured or the voiceless stops were aspirated is open to question.

(3) Proto Indo-European	*b	*d	*g	*p'	*t'	*k'	*p	*t	*k
Proto Germanic	*b[β]	*d[ð]	*g[ɣ]	*p	*t	*k	*f	*θ	*x
*V.R [-stress])_(V,#)							*b[β]	*d[ð]	*g[ɣ]
non-Germanic	*bh	*dh	*gh	*b	*d	*g	*p	*t	*k

Griffen says (rightly) that the basis of the glottalic theory is typology, i.e. observations of the kinds of phonemic system that appear in the world's languages, and that the authors of the theory have sought a typologically plausible reconstruction of Proto Indo-European. He claims that his own theory is superior, however, because it takes account of diachronic phonetics, whereas the glottalic theory would entail an implausible set of phonetic changes (pp. 213-214). It is a pity that he does not give specifics to support the latter claim as it is an important one, and it is possible that he is right. Proponents of the glottalic theory have suggested that Proto IE ejectives changed to non-Germanic voiced stops either via murmured stops or via implosives (Bomhard 1984:29). Are these change sequences plausible? It seems that the answer is 'no', as the changes ejective-to-implosive and ejective-to-murmured are phonetically implausible and unattested in the world's languages (David Stampe, pers. comm.).

It is reasonable to turn the tables on Griffen and ask whether his Proto Indo-European reconstruction is typologically plausible. In one respect the answer is 'yes', since Maddieson (1984:28) found that in his worldwide sample a quarter of the languages with three series of stops had those which Griffen reconstructs. In another it is probably 'no'. The least marked the Proto Indo-European stop system are the series conventionally reconstructed as voiceless stops in (1). They occur significantly more frequently in reconstructed roots than the other two series. Griffen's reconstruction in (2) reinterprets this series as voiceless and aspirated, contrasting with a more marked voiceless unaspirated series, a distribution which seems typologically rather unlikely, as Normier (1977:176) observed in relation to earlier proposals about the reconstruction of the Proto Indo-European stops. Maddieson's (1984:27-29) findings indicate that unaspirated voiceless stops are less marked than their aspirated counterparts.

Griffen's final 'corroboration' is Marija Gimbutas' interpretation of Indo-European archaeology. Suffice it to say here that this interpretation is far from generally accepted among archaeologists (Mallory 1989) and cannot seriously be used to corroborate a linguistic reconstruction.

In a more recent defense of his proposal, Griffen (1989) claimed that the stop system reconstructed for Proto Nostratic (the alleged ancestor of the Indo-European, Kartvelian, Uralic, Altaic, Dravidian, and perhaps Afro-Asiatic language families) by the Moscow School also corroborates his reconstruction rather than the glottalic theory. Even if we set aside the questionable status of the Nostratic macro-family we must note that Bomhard (in Bomhard and Kerns 1994:12-19) argues that Moscow School's reconstruction of Proto Nostratic is misconceived and Nostratic evidence corroborates the glottalic theory (thus is at odds with Griffen's).

Although Griffen's arguments with regard to Grimm's Law are not entirely persuasive, they are quite detailed, and it is disappointing that he does not treat Verner's Law with a corresponding degree of attention. Verner's Law is puzzling because it suggests that Pre-Germanic voiceless fricatives became voiced between vowels or word-finally when the **preceding** vowel was not stressed in Proto Indo-European. This environment is problematic because, among other things, (i) there is today some agreement among Indo-Europeanists that the relevant Proto Indo-European syllable had a pitch accent, not a stress accent; and (ii) it implies that an intervocalic consonant may form the coda of the preceding stressed syllable, not the onset of the following one—a proposal that is at odds with modern phonological theory. Griffen makes no reference to (i) and simply accepts Verner's assertion that (ii) is true. The only Verner-like rule in modern English is the one which gives [ks] after the stress in **exit** and **execute** but [gz] before the stress in **exist** and **executive** (and seemingly either, depending on idiolect, away from the stress in **existential**)—but it can be argued that this is a sequence of two segments and is rather different from

Verner's Law. A rather different, but perhaps relevant, rule in modern American English voices and flaps /t/ intervocalically when the following vowel is unstressed, i.e. in an environment which is the converse of Verner's. While (ii) may be true, it requires discussion precisely because it has theoretical implications, at least for the concept of 'ambisyllabicity' that is sometimes mentioned in modern theory (e.g. Durand 1990:217-219).

As I hope this review has shown, I found Griffen's book thought-provoking because it raises a number of methodological issues in historical linguistics and reconstruction. It is, however, a specialized and controversial work, not an introductory text in historical or Indo-European linguistics.

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From the Linguistics Department

New Coordinator and Associate Coordinator

Lou Hohulin has become the International Linguistics Coordinator for SIL as of May 1, 1996. Lou has been an International Linguistics Consultant for several years. Her primary field experience comes from the Philippines Branch of SIL. She also has consultant and teaching experience in several SIL entities, most recently at Texas SIL. Lou brings a wealth of experience into the position, and we are fortunate to have someone with her competence and cheerful disposition.

During her first year in the position she will be away from Dallas on at least two extended periods leading international workshops. With that prospect, we are also fortunate to have Les Bruce now serving as the Associate Coordinator for the department. Les has also served as an International Linguistics Consultant for several years. His field experience was in Papua New Guinea. Most recently Les has been working in the Linguistics Department on the development of a semantics component to the LinguaLinks software.

David Payne, who had been serving as Coordinator since 1993, will continue part time with the department as editor of *Notes on Linguistics* and the department's electronic newsletter *LingBits*, as well as assisting with other department projects.

Conference Announcements and Reports moved to LingBits

Beginning with the current issue of *Notes on Linguistics*, announcements of upcoming linguistics conferences and seminars, as well as reports on recent conferences, will be shifted to *LingBits* instead of being published in *Notes on Linguistics*.

Because *Notes on Linguistics* is a quarterly publication only, it has often been the case that deadlines for submission of abstracts for conference participation have passed by the time a particular issue of *Notes on Linguistics* has been distributed. With the e-mail distribution of *LingBits* being monthly or better, we are able to get conference announcements distributed in a more timely fashion.

As for conference reports, the results of a survey of some of the *Notes on Linguistics* readership a couple of years ago indicated that these reports were among the items of lowest interest—particularly conferences focused on a specific area of the world. Due to these survey results, and to make more room in *Notes on Linguistics* for a growing number of book reviews, the conference reports will now appear as part of *LingBits*, areal *LingBits*, or electronic files of the *LingBits* section of the SIL mailserver which can be retrieved via e-mail.

With each *Notes on Linguistics* issue we will include a brief mention of some conference announcements and conference reports which are *LingBits* files that can be retrieved via e-mail.

LingBits is distributed to each SIL field entity's section head for Linguistics, Academic Affairs or Technical Studies, who in turn distribute the information within that entity as they see fit. If you are a member of an SIL field entity and are not receiving this information and would like to, please contact your field entity's section head for Linguistics, Academic Affairs or Technical Studies.

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—David Payne

Congratulations to the following SIL member recently completing the PhD degree in Linguistics:

Dr. Noah Lee (North Eurasia Group)
University of Sussex, England 1996

Introduction to Government and Binding theory: Extending X-bar theory to sentences and clauses

Cheryl A. Black
SIL—Mexico Branch and University of North Dakota

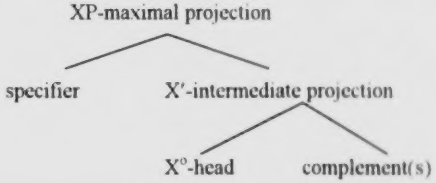
1. Review of X-Bar theory

In the first article of this series (May, 1996) we looked at the constituent structure and subcategorization within phrases headed by the lexical heads: N, V, A, and P. The similarities between these phrases are captured within GB (Chomsky 1981, 1982, 1986) by the restriction that all lexical phrases must conform to X-Bar theory. The specific version of the theory assumed is outlined here as the basic phrase structure rules (1) which generate trees of the type shown in (2).

(1) Phrase Structure Rules:

(for any lexical category X, X° = Head
XP → Specifier X'[1]
X' → X° Complements (=YP*)

(2) Basic X-Bar Structure



For example, applying the phrase structure rules to the phrase *extremely afraid of snakes* yields the tree structure shown in (3), where *afraid* is the head, *extremely* is the specifier, and *of snakes* is the complement in the Adjective Phrase (AP).

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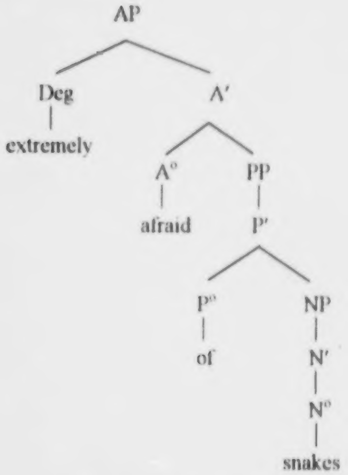
[1] The order of constituents on the right side of these equations is given in the order needed for English and other SVO languages. In the next article we will see how to account for languages with other word orders within X-Bar theory.

(3)



There are various generalizations being captured in X-Bar theory, as shown in (4). We will make use of these claims in our determination of how X-Bar theory can be extended to sentences and clauses.

(4) Claims involved in the X-Bar schemata:

1. All phrases are projected from lexical categories in the same way (i.e. the PSRs in (1)).
    a. For conjunctions: $X^n \rightarrow X^n$ Conj X^n.
    b. For adjunction: $X^n \rightarrow Y^m X^n$[2]
2. A head (=X^0) subcategorizes for all and only its sisters.
    a. The subcategorized complements are always phrases.
    b. Heads and their maximal projections may share features, allowing heads to subcategorize for the heads of their sisters (e.g. *rely*).

---

[2] *n* may be any bar level (0,1,2 = X^0, X', or XP), *m* may only be 0,2 since only heads or maximal projections may move or adjoin. Also the right side of the adjunction rule is unordered; adjectives adjoin on the left, but other NP adjuncts such as relative clauses adjoin on the right and VP adjuncts such as adverbs may adjoin on either side.

3. In general, specifiers are optional. Evidently, specifiers may be words or phrases.

2. Extending X-Bar theory to clausal complements

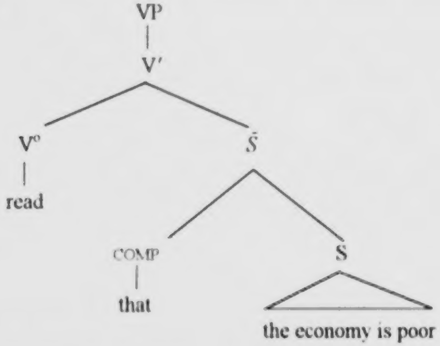
In the first article we saw that verbs choose or subcategorize for which complements can follow them. Consider the verb *read*. One can *read (the book) (to John)* or *read that the economy is poor*. In the first instance, we can say that *read* subcategorizes for an optional NP complement and an optional PP complement headed by the preposition *to*. The lexical entry would be:[3]

read, V, [_(NP) (PP$_{[to]}$)]

But what can we do about the complement *that the economy is poor*? What kind of phrase is it and how does it fit into X-Bar Theory?

Transformational grammar assumes that clauses are built up from sentences using the rule: $\bar{S} \longrightarrow \text{COMP } S$. (5) shows the traditional tree for the VP, ignoring for the moment the internal structure of S.

(5)



Under transformational grammar, the head of the clause is the sentence and the complementizer is a specifier. The sentence cannot be the head of any phrase in X-Bar theory, since it is not a lexical item or word; it is most likely a complement. Further, the X-Bar schemata allows more positions within the phrase than the *S̄* rule does, so we need evidence to determine whether the complementizer is a specifier or a head.

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[3] See the first article for explanation of the subcategorization frames within the lexical entry.

Examine the following data:[4]

(6) a. Everyone insisted that the store would close on Thursdays.
b. * Everyone insisted for the store to close on Thursdays.
c. * Everyone insisted whether the store would close on Thursdays.
(7) a. They managed for their children to be happy.
b. * They managed that their children would be happy.
c. * They managed whether their children would be happy.
(8) a. Sue wondered whether the smoke would clear before daylight.
b. * Sue wondered that the smoke would clear before daylight.
c. * Sue wondered for the smoke to clear before daylight.

What accounts for the distribution above? Each of these verbs not only takes a clausal complement but it chooses which complementizer the clause must have. This is reminiscent of a verb like *rely* which subcategorizes for a PP complement which must have *on* as the preposition. Therefore, the main verb's subcategorization is what allows the grammatical examples and rules out the ungrammatical ones. By claims 2 and 2(b) in (4) we know that: (a) only heads can subcategorize, (b) any sisters of the head must be subcategorized for (ruling out the starred examples), and (c) if something is subcategorized for, it must be either a complement or the head of a complement. Therefore, since the specific complementizer is subcategorized for by the verb, the complementizer must be the head of the complement clause. (It cannot be the specifier because specifiers are never subcategorized for.) Further, if the complementizer is the head of the clausal complement, then according to X-Bar theory the clausal complement is a complementizer phrase or CP.

The revised structure for (5) is:

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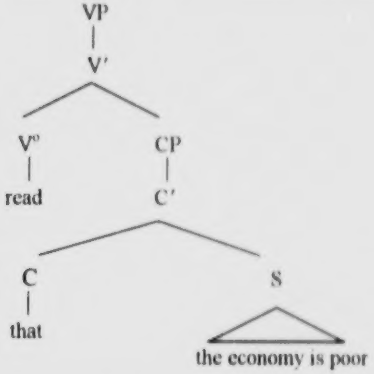
[4] Throughout this series, a * before an example indicates ungrammaticality. As noted in the first article, it is crucial that the theory rule out ungrammatical examples as well as correctly generate the grammatical data.

(9)



C is a non-lexical or functional head. We need to expand the range of categories to which the basic PSRs apply. This can be accomplished by deleting the phrase 'from lexical categories' in claim 1 in (4) so that it reads simply, 'All phrases are projected in the same way' and by removing the word 'lexical' within the parenthetical note in (1).

We can now write the following lexical entries for the main verbs in (6)-(8):

insist,	V,	[_CP$_{[that]}$]
manage,	V,	[_CP$_{[for]}$]
wonder,	V,	[_CP$_{[whether]}$]

At this point, complement clauses almost fit within X-Bar theory. One problem remains: if C is a head, its complement must be a phrase by claim 2(a) in (4). Yet the complement of C seems to be a sentence (S). Is S a phrase in X-Bar terms?

3. Reanalyzing sentences within X-Bar theory

The traditional phrase structure rule for a sentence is: S ⟶ NP VP. In order to reanalyze this rule in X-Bar terms, its head, complement, and specifier must be determined. Neither of the constituents on the right side of this rule can be the head of a phrase because they are phrases themselves, not lexical items or words. To find out what the head of a sentence is, we need to look again for evidence of subcategorization.

Consider this data:

(10) a. Everyone insisted that the store would close on Thursdays.
b. Everyone insisted that the store was closed last Thursday.
c. * Everyone insisted that the store to close on Thursdays.
(11) a. They managed for their children to be happy.
b. * They managed for their children were happy.
c. * They managed for their children would be happy.
(12) a. Sue wondered whether the smoke would clear before daylight.
b. Sue wondered whether the smoke cleared before daylight.
c. * Sue wondered whether the smoke to clear before daylight.

When the complementizer is either *that* or *whether*, the sentence that follows is a regular finite sentence, and *to* cannot be present as shown in (10c and (12c). In contrast, when the complementizer is *for* (11), *to* must be present and a finite or tensed verb is not allowed in the following sentence. We can say that the complementizers *that* and *whether* subcategorize for a finite complement, whereas *for* requires a nonfinite complement. But the head of that complement still needs to be determined. We saw that *to* must be present when the complementizer is *for*. We can conclude that *to* is the marker for nonfinite clauses in English. Thus, *for* subcategorizes for a nonfinite complement that must have *to*, so *to* must be the head. Further evidence that *to* is a head can be seen in (13)-(14). Since *to* subcategorizes for the bare form of the verb following it, *to* must be a head.

(13) a. They managed for their children to be happy.
b. * They managed for their children to were happy.
c. * They managed for their children to are happy.
(14) a. We would like for him to leave.
b. * We would like for him to left.
c. * We would like for him to leaves.

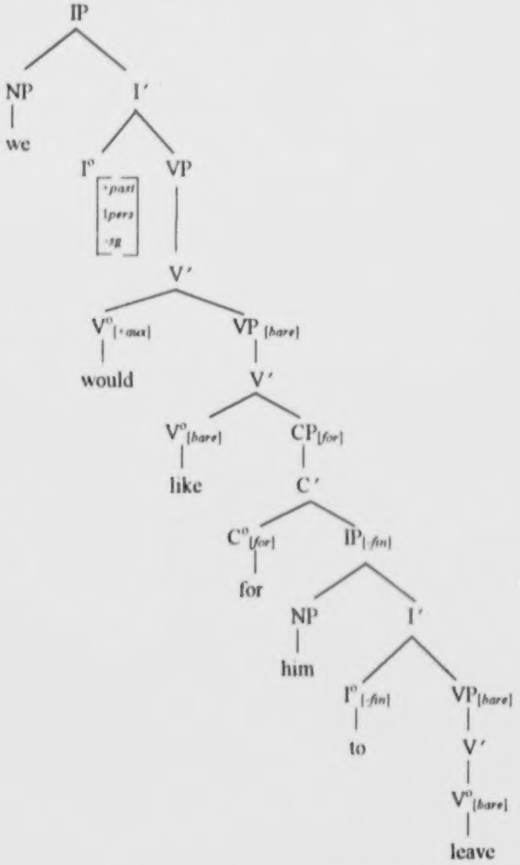
We still need a category for *to* and for its counterpart in finite sentences. GB posits that the tense and agreement features fill the same head position in finite sentences that *to* fills in nonfinite sentences. The category is therefore called Inflection, or Infl or I for short. This means a sentence is an IP.

The lexical entries for the three complementizers and nonfinite *to* can be given as:

that, C, $[\_IP_{[+fin]}]$
for, C, $[\_IP_{[-fin]}]$
whether, C, $[\_IP_{[+fin]}]$
to, $I_{[-fin]}$, $[\_VP_{[bare]}]$

$I_{[+fin]}$ is never filled by a lexical word at D-structure in English so it does not have a lexical entry. It always takes a VP as its complement just as nonfinite *to* does. The subject NP is assumed to fill the specifier position in the IP. We can now draw trees for any of the sentences discussed so far. The tree for (14a) is exemplified in (15), where I assume that pronouns are NPs and auxiliaries are verbs which take a VP whose head has a certain form as their complement.

(15)


IP
NP
we
I′
I°
+past
1pers
-sg
VP
V′
V°[+aux]
would
VP [bare]
V′
V°[bare]
like
CP[for]
C′
C°[for]
for
IP[-fin]
NP
him
I′
I°[-fin]
to
VP[bare]
V′
V°[bare]
leave

English sentences and clauses, as well as lexical phrases, now conform to X-Bar theory in that they can be generated from the two basic phrase structure rules in (1), possibly coupled with the conjunction and adjunction rules in claims 1(a-b) of (4). Our next step is to see how this theory of phrase structure can account for languages with other word orders. This will be the topic of the next article.

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________. 1986. Barriers. Chicago: MIT Press.

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Report from Keith Snider (SIL - Cameroon) on the
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What to do with CECIL? Acoustic phonetics, CECIL, and linguistic field work

Joan Baart
SIL—West Eurasia Group

'The CECIL hardware and software package is the most FUN computer program that SIL has ever put out.'

Quoted above is the opening sentence of a paper that Mike Cahill wrote for *Notes on Linguistics* some four years ago (Cahill 1992). As most readers probably know, CECIL is the name of a system for acoustic analysis of speech. It is a small, portable, battery-powered system that is used in conjunction with an MS-DOS personal computer. (Recently a version was released for MS-Windows that is used in conjunction with a Windows sound card rather than the original CECIL hardware interface.)

In this paper I review the potential benefits of acoustic analysis of speech for linguistic field work. I also consider the question as to what challenges there are for beginning users of CECIL and to what extent adequate help is available to them.[1]

In his paper, Cahill went on to say: 'I have been using it for a couple of years now and have found it very useful.' In general, use of CECIL has been found helpful in several areas of field linguistics. In doing phonetic transcription, for instance, a great improvement over the use of a tape recorder is provided by the ability for the user to isolate an utterance fragment of arbitrary length (be it a phrase, a single word, or, say, the initial part of a diphthong). This fragment can then be played back as often as needed and at different speeds, all with a single keystroke. It can also be compared (so as to probe a possible phonetic contrast) with a similar fragment of another utterance: one keystroke will replay one fragment, another keystroke will replay the other fragment.

---

[1] I am grateful to Alec Epting, Terry Gibbs, Geoffrey Hunt (all three of SIL), and Vincent van Heuven (Leiden University, The Netherlands), for their comments on a draft version of this paper. The responsibility for any errors in the current text remains with me.

In addition to these zooming and play back features, the various graphs that the program puts on the screen further enhance accuracy of transcription. This is particularly true for phonetic features that some people find difficult to hear with their bare ears; these include, among others, vowel quality, presence vs. absence of voice and aspiration, vowel length, and of course pitch.

Some areas can hardly be attacked at all without instrumental measurement. An example is the study of prosodic properties stretching over larger segments of spoken discourse (including melodic, temporal, and loudness features). Yet another benefit of CECIL is that (for the purpose of publication, or for discussion with colleagues and consultants) analyses can be backed up by instrumental evidence, complementing ordinary impressionistic data (Loos 1992:3).

The virtues listed so far hold equally true for the speech analysis systems that are found in the laboratories of academic and commercial speech research institutions. In fact, the possibilities of CECIL are quite limited as compared to these lab systems. However, CECIL has some qualities that have proven crucial in making it a useful tool for ordinary field linguists: it is portable and battery-powered, it is robust and user-friendly, and it is low-priced.

It is not surprising then, that since its introduction in 1990, CECIL has been able to attract a following of enthusiastic users, both within and outside of SIL. To date, some 400 units have been sold.

However, notwithstanding the enthusiasm of Mike Cahill and others (including myself), it is not clear if the following of CECIL is as wide as it could be. According to reports at the meeting of the Speech Analysis Guidance Team in Waxhaw in November 1995, CECIL is not well advertised and generally under-used in the SIL field entities. It was also suggested that of the units sold, a significant number were actually purchased by non-SIL members.

There is a variety of reasons why this might be so. To start, only part of SIL's linguists are engaged in phonological analysis, and some of these simply do not run into the kind of problems that one would like to attack with instrumental measurement. Secondly, for those already on the field there may be practical obstacles to be overcome in having a piece of electronic hardware shipped out to them. (In the near future, computers will standardly come equipped with adequate signal processing capabilities, and CECIL and its successors will then be distributed as software only.) Thirdly, some people have complained that CECIL is not user-friendly enough, and that its pitch tracking function in particular is overwhelmingly complex from the user's point of view.

Indeed, the calculation of CECIL's pitch graph is controlled by no less than five parameters that are initially set at default values but which the user may have to adjust. The first of these sets the minimum and maximum frequencies for the current speaker (his 'pitch range'). I normally have to adjust this parameter once for a single speaker. I may occasionally have to adjust one or two of the other parameters as well. In addition to these five calculation parameters, there are several options that control how a pitch graph is presented on the screen. Sounds overwhelming? You probably spent more time installing your modem and communications software than it takes to learn how to produce good pitch graphs with CECIL.

I suspect that this perception of complexity is due to a lack of motivation to spend more than five minutes in learning it, or to non-availability of an experienced user who could guide the novice through the first steps, or perhaps simply to non-familiarity with the basic concepts of acoustic analysis.

This leads us to the fourth reason. In a user report on a prototype version of CECIL, Keith Snider wrote:

> I found that ... there was quite a bit of frustration by users who were not able to properly interpret their results. Interpreting the results of acoustic analysis is an art and definitely needs to be done under the guidance of an experienced person (Snider 1989:4).

And Geoffrey Hunt writes:

> Most linguists are not familiar with acoustic phonetics; they have to learn how to handle the data that is collected. Linguists will have far more data available to them and must learn to pick out what is significant and ignore the insignificant (Hunt 1995 [1990]:123-4).

It seems to me that these two remarks point to the real reason for the gap between the potential use and actual use of CECIL: it is one thing to learn how to operate a car; it is another thing to drive it responsibly through busy city traffic, or on a fast motorway, or on a winding mountain track. The technology that CECIL has made available is very powerful but do we know how to apply it to field linguistics? Probably some people are not taking advantage of CECIL because they do not know what to do with it. Other people may have tried it and were frustrated because they had false expectations ('I will just feed a couple of utterances into my computer, and if my language is tonal, it will show up on the CECIL graphs').

It is noteworthy that the remarks by Snider and Hunt were written even before CECIL was officially released. But, in the six years that have elapsed, has anything been offered in the way of an adequate response? To answer this question, we should first have a closer look at Hunt's book: *Interpreting CECIL*, which is ostensibly an attempt to bridge the knowledge gap for beginning users of CECIL. The original version came out in 1990 together with the CECIL hardware and software. A new, thoroughly revised and expanded edition came out November 1995. My conclusion is that this book is good for getting people started with CECIL but not sufficient as an introduction to practical acoustic phonetics.

The new edition of *Interpreting CECIL* is well-edited, professionally laid out, and in general a pleasure to work through. It is full of practical information about CECIL and even I (after four years of using CECIL) learned new things. I would recommend this book for most beginning users. A minor infelicity is that many of the examples in the book are also provided as utterance files on the CECIL distribution disk, but the book does not specify the file names that correspond to the printed examples. It would have been nice, as one works through the book, to be able to load the examples and listen to them. Admittedly, as there are only 15 example utterances on the disk, the patient reader can, with a little bit of work, figure out which picture in the book is derived from which utterance on the disk. One may also consult the appendix at the end of this paper.

In five decades or so of acoustic phonetics, an impressive body of knowledge has been built up which is accessible via a diversity of textbooks and the references given therein. To my taste, *Interpreting CECIL* fails to adequately tap in to this knowledge base. At several points helpful references to the literature could have been given or, even better, short reviews of the received wisdom on particular issues could have been included. I appreciate that the purpose of the book was to offer something simpler and more practical than a textbook of acoustic phonetics. However, especially at those points in the book where there is extensive discussion of examples, a little more reliance on what the literature has to say (with evidence replicated by CECIL) would have been beneficial.

For example, there is a long discussion of plosives (pp. 27-40). The point of this discussion is that reality, when looked at with the help of acoustic instruments, is far more diverse and complex then one would think from classes in articulatory phonetics. That is an interesting point, but someone interpreting CECIL graphs needs more than that.

The key problem in applying acoustic analysis to linguistic problems is this: perceptual (or linguistic, or emic) categories are typically not manifested in the acoustic signal in a simple and straightforward fashion. As an example, take the category [+voice] in English. The naive student would think that [+voice] in the case of plosives such as [b] and [d] corresponds to vibration of the vocal cords during the production of the plosive, and hence to periodicity (a recurrent wave pattern) in the acoustic signal. The examples given in the book illustrate the well-known fact that this is not true for the English [+voice] plosives. The [g] shown in the examples is acoustically as voiceless as the [kh] with which it is contrasted (p.32).

The perception of a plosive as [+voice] is in fact triggered by a combination of 'acoustic cues'. One such cue is voice onset time (voice comes on relatively quickly after the release burst of the [+voice] plosive); another one is the duration of the preceding vowel (longer before [+voice] plosives than before [-voice] ones); yet another one is pitch on the initial part of the following vowel (lower following [+voice] plosives, higher following [-voice] plosives). Other cues may be the abruptness of the onset of the following vowel, the intensity of the release burst, and presence of periodic vibration in the initial part of the occlusion phase of the plosive. Some of these cues may be stronger than others, and not all of them need to be present in every instance.

Worse than this is the possibility that in instances where none of these cues is present, a [+voice] plosive may still be 'hallucinated' by the listener when he expects it to be there.

> There is substantial evidence that much of our understanding of speech involves a component of 'top-down' linguistic processing which draws on our knowledge, and does not demand segment-by-segment processing of the acoustic signal to establish the phonological structure and arrive at its meaning (Clark and Yallop 1990:272).

In view of this messy relation between perceptual categories and their correlates in the acoustic signal, one might be tempted to conclude that attempts to apply acoustic analysis to linguistic field work are futile. This conclusion is false, though, as I have indicated in the opening paragraphs of this paper. CECIL can be applied successfully to linguistic problems as a number of people have shown, but it needs to be done intelligently. This does not require years of training in acoustic phonetics. I suspect that some of the successful people have just ventured ahead and acquired their skills by means of trial and error. What other people need, I think, is a systematic overview of the findings of acoustic phoneticians in a number of important areas, showing them what to expect and look out for.

Let me reinforce this point with another example: the interpretation of pitch graphs (discussed in chapters. 9 and 10 of *Interpreting CECIL*). Again, there is no simple relation between the perception of, say, High tone, and the acoustic property called fundamental frequency. A pitch graph (more accurately—a fundamental frequency graph) contains a wealth of data but some of that data is meaningful for a linguistic analysis and other data is mere noise. A linguist must learn to distinguish between 'what is significant' and what is 'insignificant'. For this purpose a systematic discussion of factors that universally tend to influence pitch would be helpful. For example, voiceless plosives often raise pitch on the initial part of a following vowel, voiced plosives depress pitch on the initial part of a following vowel, high vowels tend to have higher pitch than low vowels, and average pitch typically drifts down over the course of an utterance in both tonal and non-tonal languages ('declination').

Physiological and aerodynamic explanations have been proposed for these phenomena, and the linguist will normally want to abstract away from them. This type of non-linguistically conditioned variation may still be perceptible; in many cases it has given rise to the emergence of tonal distinctions as a language changed over time. As a result, in some of these languages Low tone is obligatory on vowels following voiced plosives, whereas High tone and Low tone contrast freely in other environments. The analyst will need to be aware of this possibility, too.

A notorious problem case for acoustic analysis is STRESS—the perception of a syllable as prominent relative to neighboring syllables. I wonder if SIL students today are still taught that stress corresponds to loudness, or intensity, or energy, as I was eight years ago. This notion is certain to confuse those who want to use CECIL for studying stress in their language. In fact, phoneticians have the hardest time finding out what aspects of the acoustic signal trigger a perception of syllable prominence. One view was expressed as follows (van Katwijk 1974:5):

> What makes a syllable accented is for the larger part the work of the perceiver, generating his internal accent pattern on the basis of a strategy by which he assigns structures to the utterances. These structures, however, are not fabrications of the mind only, for they can be related to sound cues. The strongest cue of accentuation will be found to be pitch, if it is shaped in specified intonation contours.

Perhaps the most extreme view was held by Bolinger, who defined linguistic stress as 'potential for pitch accent' (Bolinger 1958). In other words, for Bolinger stress was merely an abstract property of a word specifying which syllable within the word gets the intonation nucleus, should the nucleus fall on that word. For Bolinger, loudness played no role.

Interesting in this respect is the reported phenomenon of stress neutralization in post-nuclear position (see e.g. Couper-Kuhlen 1986:24-5 and references cited there). In experiments, listeners appeared to be unable to distinguish (British English) 'LOOK-out' ('man on watch') from 'look-OUT' ('fault/risk') in: that's your OWN look-out (intonation nucleus on 'OWN')

CECIL users can easily replicate these experiments by embedding this sentence in two different contexts, according to the two different meanings. These can then be recorded on tape and the target sentence from each text fed into the computer. Then play the two versions of the target sentence to a number of different people and have them guess which version was taken from which context. One can also excise just the word 'look-out' to see which syllable listeners perceive as stressed.

I believe most phoneticians would say that there is a hierarchy of acoustic cues to stress—with pitch (pitch movement rather than pitch height) coming first, then duration, and then loudness, with a trading relation so that one cue may become more important in the absence of another. Recent research has brought to light another acoustic cue to stress, stronger and more consistent than loudness, namely 'spectral balance'. This relates not to the overall amount of energy spent in the production of a vowel but to the way energy is distributed over the frequency spectrum. Stressed vowels tend to have more energy in their higher frequency bands as compared to unstressed vowels (Sluijter, Shattuck-Hufnagel, Stevens, and van Heuven 1995).

Apart from a basic awareness of the results of acoustic phonetic research, what else do users of CECIL need to know in order to benefit fully from the technological capabilities available to them? I suggest a basic awareness of investigation strategies helping them to design little experiments such as the one on stress neutralization mentioned above. In addition to that they need to have a basic awareness of the principles of statistics, helping them to draw valid conclusions from a set of data.

The field of acoustic phonetics is dominated by a research strategy that users of the CECIL program can employ only to a very limited extent. This research strategy involves manipulation of the acoustic speech signal. CECIL users can cut out a fragment of speech from an utterance and play it in isolation, which is a very basic form of manipulation. In addition, it is possible to use the program UTTWARP, which comes with CECIL version 2.1, for changing loudness and duration of phonetic segments in utterances. The equipment in most phonetic labs also allows the user to manipulate other properties of speech such as pitch and vowel formant trajectories. These latter facilities will hopefully come with the Acoustic Speech Analysis Package, which is presently under development at JAARS.

I mention these speech manipulation features here because I think that they are not going to be for a small group of specialists only. I think on the contrary that they are going to make acoustic analysis more helpful for ordinary field linguists. The reason is again that the linguist using acoustic analysis must learn to 'pick out what is significant and ignore the insignificant'. Precisely this is hard to do by visual inspection of a number of curves on a computer screen. Much more can be learned if you can change those curves to hear what effect that has on the utterance under study.

Making acoustic analysis available for ordinary linguists doing descriptive work on the field is pioneer work. I am not aware of anybody who has done it before. The CECIL program and the book *Interpreting CECIL* are therefore very much pioneering achievements. I hope this paper serves to generate some reflection among SIL's linguists on how to further build on these achievements.

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Appendix

Example utterances on CECIL v2.1 distribution disk and corresponding figures in *Interpreting CECIL* (1995 edition):

HANGA1.UTT: Figures 3d, 7c, 8a, 8b, 8c, 8e, 8h, 10a, 10c, 12a, 12b
HANGA2.UTT: Figures 8f, 8g, 10b, 10d
HANGA4.UTT: Figure 10f
ENGLISH1.UTT: Figures 4f, 7b, 8d
ENGLISH2.UTT: Figures 4i, 4q
CHFRENCH.UTT: Figures 4k, 8j
BALUCHI.UTT: Figures 5a, 5b, 6a, 7a, 11b, 11c, 11f, 11h
TAMIL.UTT: Figure 7d
DOYAYO.UTT: Figure 8i
NONI.UTT: Figure 11c, 11d
MIMIC.UTT: Figure 12a, 12b

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WinCECIL

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The package Computerised Extraction of Components of Intonation in Language or simply CECIL for DOS was the subject of my original review (*Notes in Computing*, October-November 26-28, 1990). At that time I pointed out the outstanding features of this software and accompanying hardware box; its robust pitch extraction, its modest cost, and its ease of use—all of which made it a must for the field linguist. In that review I also suggested a number of extensions to the original product to make it even more useful. Since then, lots of these and other exciting features have been incorporated into revised versions of CECIL so that its usefulness today has been dramatically increased; it is certainly capable today of a great deal more than the extraction of components of intonation. It is currently available as CECIL 2.1., which I understand will be the last DOS-based version of CECIL and WinCECIL 2.1b. Here I am reviewing WinCECIL v2.1b or WinCECIL for short (available from JAARS, Box 248, Waxhaw, NC 28173). WinCECIL 2.2 with even more features is due out by summer of 1996. WinCECIL 2.2 will be succeeded by other products currently under development.

WinCECIL retains basically all of the attractive features of earlier versions, adds a number of new capabilities, and embeds these into the MS-Windows interface. CECIL-DOS was nominally menu-driven in the sense that the user could toggle between menu commands at the top and screens below. WinCECIL raises these capabilities to a much higher level by adding a fully operational mouse-enhanced menu system, dialogue boxes, Windows-standard on-line, context-sensitive help, a clipboard, and a toolbar. The future of CECIL also seems bright as there are anticipated additions and successors to WinCECIL already in test and even a port to the Macintosh platform is well underway. A lot has happened; five years is a long time in the computer business.

New I/O features. The most dramatic changes in WinCECIL pertain to the I/O (input-output) aspects of the program. The first and most important difference is that WinCECIL does not, indeed cannot, use the blue hardware CECIL BOX of the CECIL-DOS extraction package. It requires a computer-internal sound card such as Sound Blaster or other built-in sound system or PC card. In WinCECIL 2.2 record and playback with the blue box will be enabled. But with the current version a sound card is compulsory and it further dictates the two standard Windows sampling rates (22050 Hz and 11025 Hz) for input, though according to the accompanying description, playback at other sampling rates is possible. The use of computer-internal sound hardware has the distinct advantage that for the laptop-cum-soundcard-blessed no extra bulk or weight is needed to be field-ready. Digital Filtering of very low frequencies from poor recordings has also replaced the analog filters of the blue box (beginning in version 2.1a). Furthermore, the stereo input and output of sound cards opens the possibility of synchronous dual channel analysis in future versions of CECIL. Unfortunately for the user, choosing a sound card and configuring it is not always a trivial matter and, indeed, it may require the help of an expert.

The second major change in I/O is the much improved printing capabilities of the software. The original CECIL-DOS provided only two printer driver possibilities—both of which interfaced to dot matrix-types printers. WinCECIL output for most of its screens is stunning in quality when directed to a laser printer using the PCX files. The print outs of sound spectrograms remain the least satisfactory part of this implementation. Best results are obtained on a printer that can render gray scale. The spectrogram shading should be set to 4x4 or 8x8 matrix (with maximum shading in the 'print' menu turned off). In order to print, the user is to choose the window number and type it into a dialogue box when 'print' is invoked. The printing size and the number of windows to be printed on one sheet and their orientations are controlled by setting slide bars, by choosing the number in the lower left corner of the windows to print, and by setting the number and width of columns. Thus there can be a full width output or narrow prints for one, two, or four windows on a page. There can also be two columns of screens. In order to print composite screens of more than one window, the screens to be overlaid are given surrounded by <-->, (--), or {--}. A possible improvement here might be to include dialogue boxes or radio buttons for compositing screens to help the less sophisticated.

New display features. In addition to the new I/O features, there is a much more flexible choice of displays in WinCECIL than in CECIL-DOS. First of all, color is supported so that data from two composited frames, for instance, are easier to distinguish. As in Windows standard applications, the frame surrounding a block of display windows is resizable. Moreover, the user can determine what content, raw waveform, Fraw, Fsmooth (FO), etc., is put into each of the one to—at most—six frames including putting displays from two original waves, called A: and B: together (maximum about three seconds each utterance). One can hope that later versions will allow for the capture of sound files of longer duration, as three seconds is insufficient to analyze some sentence material and almost anything from discourse prosody. It is a plus though, to be able to copy the contents of one window into another window. There is also a smoother grouping of functions. Under the 'File' menu are now the functions 'record', 'save', 'save as', 'capture window', and 'exit'. The 'Display' menu allows the number, arrangement, and contents of windows to be decided. The 'Edit' menu provides not only the typical editing features such as 'cut', 'paste', and 'delete', but it also includes control over processing to generate sound spectrograms (see next section).

Another display feature that is richly endowed in CECIL is the 'snapshot'. If one wants to focus on a subsection of a waveform, a piece of the fundamental frequency trajectory, spectral distribution of energy, or a spectrogram, then the material between a main and second cursor can be projected into a separate snapshot window by the 'Display selected data' or 'Analyse selected data' feature.

New analysis features. In addition to the new I/O and to the new modes of display, WinCECIL (like version 2.0 of CECIL-DOS) can generate sound spectrograms. The spectrogram capability raises CECIL from being just a 'long-handled wrench' for grappling with pitch to being a 'general tool chest' that can address other important acoustic domains. Sound spectrograms are namely among the most useful techniques for the field investigator to make vowel quality plots, decide whether this vowel is, for example, higher or more central than that one. WinCECIL has similar features as those found in CECIL 2.1 in that a spectrogram is not automatically calculated simultaneously with the fundamental frequency and related plots. This choice is motivated by the fact that the processing of waveform information to produce a sound spectrogram (especially of a lengthy piece of speech) can take some time. Sound spectrograms also require much longer to calculate than in some other products. Spectrographic analyses are invoked from the 'Edit' menu and the attendant features to it are found under the 'View' menu (see the following paragraphs). Once calculated the sound spectrogram can be appended to the waveform file so that subsequent calculation need not be done again when the file is opened for viewing.

Parallel to the 'Display selected data' described is the 'Analyse selected data' feature, which allows the data around the cursor (128 data samples) in the waveform or time wave to be analyzed for their power spectra. If the main and secondary cursor mark off a subsection of a waveform up to about 50 msec, then that bandwidth of data and not 128 data samples is used in the calculation of the spectral distribution of energy. This function could be useful in determining the amount of energy in each harmonic, a sound feature sometimes called spectral tilt. Spectral tilt could give information about the voice quality of a syllable.

While it isn't a new feature of WinCECIL one feature worthy of note is the Video Spectrum utility. Once a sound spectrogram has been calculated for a given CECIL file and stored, then for the time point where the cursor currently is found, the power spectrum can be displayed in the snapshot window. Moreover, it is possible to link the two displays so that as the cursor in the spectrogram window is moved left or right across the sound spectrogram display, then the power spectrum (derived from the 128 data points around the cursor) is ingeniously displayed in its ever-changing affinities in the snapshot window. This feature is especially useful in fixing precise values for the formants of that syllable as they vary across it. WinCECIL 2.2 may include even better tools for tracking formants.

Saving and retrieving data files. WinCECIL like its predecessors uses the *.utt file format to keep digitized examples for later study. One nice touch is that WinCECIL allows the user to see full information of a *.utt file without bringing it into memory completely. 'Open' under the 'File' menu shows the name of the file, whether it contains an embedded spectrogram file, the length of the file in bytes and time (msec), its transcription, and allows the user to play it back to help identify it.

In summary WinCECIL merges powerful pitch extraction with standard and unique implements of spectral analysis while remaining marvelously within the grasp of the non-specialist field phonologist. It would help get an even larger group of field investigators interested if updated manuals were produced for WinCECIL. The on-line helps are great for the technicians but they are not adequate for beginners. The original CECIL tutorial provides aids on issues such as hertz vs. semitones, magnitude as well as a statement of the use and usefulness of pitch plots, spectrograms, spectrum displays, M change, L change, and H change. There is a very useful online manual accompanying MacCECIL 0.9.

Our kudos again to Geoffrey Hunt and Philip Brassett for reinventing CECIL. The Macintosh version (being developed by Arnd Strube, currently in version MacCECIL 0.9) has succeeded in polishing this jewel even further by allowing for independently resizable frames and for the natural extension of picking out active data by clicking and dragging across a frame with the mouse. WinCECIL and its Mac alter ego when released will be hard to eclipse for ease of use.

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Dissertation Abstracts

Interrelations of prosody, clause structure and discourse pragmatics in Tarifit Berber

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The interconnections that exist among prosody, clause structure, and discourse pragmatics have been noted by many linguists (e.g., Halliday 1967; Givón 1983; Longacre 1983). These interconnections have included such phenomena as pausing after a paragraph or episode, and other interconnections have concerned characteristics of certain types of discourse such as narrative in which the use of intonation indicates topic and/or focus. Still others pertain to changes in clause structure which characterize certain sections of a discourse, such as peak, where clauses may display unusual word ordering, inflection, and unique intonation (Longacre 1983). However, few of these interconnections have been studied quantitatively and systematically.

This study is a systematic investigation of the links among prosody, clause structure, and discourse pragmatics in four oral narratives of Tarifit, a VSO Berber language spoken in northeastern Morocco. Using the speech analysis program *Signalyze*, levels of amplitude, fundamental frequency, length, and speed were analyzed. In addition, factors relating to clause structure (word order and clause constituency) and discourse pragmatics (discourse profile, storyline, episode boundaries, and topic and focus) were quantified using the program *Excel*. *Excel* charting revealed connections of prosody to clause structure and discourse pragmatics, but the weights of these connections were not apparent. A variable rule program, Goldvarb, was used in filling this gap to demonstrate the relative strengths of correlation among the three sets of factors.

The results of this investigation support some, but not all, claims of previous researchers, and revealed numerous additional interrelations not previously noted. For example, amplitude and frequency proved to operate independently; prominences of amplitude are part of climax clauses and topic/focus, while prominences of frequency are tied to clause constituency (i.e., accompanying major clause constituents such as verbs and subjects). Also, there were more and stronger correlations between discourse

pragmatics and prosody than between discourse pragmatics and clause structure.

These results suggest that prosody in relation to discourse pragmatics and clause structure may be a rich field of future linguistic endeavor. They also contribute to greater knowledge of a little known language in North Africa.

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Referent management in Olo: A cognitive perspective

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This dissertation investigates the phenomena that influence the choice of referential form in Olo narratives. Olo is a language of Papua New Guinea. The investigation is a text based, quantitative examination which compares the adequacy of different models of referential management. This work uses insights from cognitive studies involving the mental activation of referents in discourse to develop a model of referential management called Goal Oriented Activation. It departs from previous work by claiming the choice of referential form is not based solely on the current activation level of a referent, but also on the activation level that the speaker wants to achieve in the hearer at the end of the sentence. Further, the choice of form is also dependent on the overall goals of the speaker, who will choose forms not only based on the activation level of the particular referent, but also based on the desired activation levels of the other participants. In this way the speaker will attempt to keep the important referents more activated than the other participants in the story.

The main competing models are current state models. They hold that referential form is based only on what has happened previously in the narrative. The current state models that were considered in this dissertation are: recency, episodes, and memorial activation. All the competing models were found inadequate to account for the data found in the Olo texts. All the tests conducted supported the Goal Oriented Activation model. A crucial piece of data in comparing these models is the introduction of new third person referents by minimal forms. The participants in question are fully referential, even though they are introduced by a pronominal affix on the verb. This evidence falsifies the recency, episodes and memorial activation models, but is in complete harmony with Goal Oriented Activation.

Also included in this dissertation is information on the Olo language. This language is non-Austronesian and unrelated to highland clause chaining languages. The information presented here, while not a complete reference grammar, provides material for those interested in both Papua New Guinea and comparative typology.

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Reviews of Books

Everything that linguists have always wanted to know about logic* *but were ashamed to ask, 2nd ed. By JAMES D. MCCAWLEY. Chicago: The University of Chicago Press, 1993. Pp. 633. Paper $22.95.

Reviewed by ALAN BUSEMAN
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This is the third book on logic to be reviewed in *Notes on Linguistics* (*NOLG*) in recent years. The other two are Barwise and Etchemendy (1990), reviewed in *NOLG 61* (1993), and van Benthem (1985), reviewed in *NOLG 68* (1995). Based on what I can gather from the reviews, Barwise and Etchemendy is a good introduction to first order logic, and van Benthem is a short, terse summary of intentional logic. McCawley is twice as long as those two books put together, which gives some idea of the contrast. McCawley is far more than an introduction and far more than a summary. He tries to give real depth in every area, including lots of references to original source material by those who have developed the concepts. He covers far more than just first order logic and intentional logic. McCawley is a wonderful source book on logic. It is full of introductions to other works on logic, in each case giving enough summary and critique to give a good idea of what is in the work.

The book begins with a short introductory chapter and a chapter on the syntax of Predicate Logic. Then come two chapters on Propositional Logic and a chapter on Set Theory; then two more chapters on Predicate Logic. The rest of the book consists of eight chapters on a variety of topics including Speech Acts and Implicature, Presupposition, Possible Worlds, Fuzzy Logic, and Montague Grammar. The book makes liberal use of well annotated examples, many of them laid out in chart form or with tree diagrams. Each chapter ends with a set of exercises. At the end of the book are 45 pages of Notes, 14 pages of References, a six-page List of Symbols, and a nine-page Index. These sections seem very thorough and complete. The level of pedagogy of the book seems very high, and the quality of the editing is equally well done.

This book is the second edition of a book that was originally published in 1981. From the introduction it appears that this edition has added some new topics, revised the order of presentation, smoothed some places the author felt could be improved, and brought some areas up to date with recent publications.

McCawley's purpose in writing the book was to provide a textbook for a logic course he was teaching for students of linguistics. He gives his goals on page xv in the preface to the first edition:

> While there are many admirable logic textbooks ... none matched very well my conception of what a course of logic for linguists should provide: a survey of those areas of logic that are of real or potential use in the analysis of natural language (not just 'basic' areas of logic, but areas such as presuppositional logic and fuzzy logic that are usually ignored in elementary logic courses), rich in analyses of linguistically interesting natural language examples, doing justice both to the logician's concerns and to the linguist's in the analysis of those examples, and making clear to the linguist what the logician's concerns are, in particular, what reasons logicians have for doing many things that may strike a linguist as perverse. I was able to offer a course along these lines only by supplementing an assigned textbook with numerous extra readings and lectures aimed at filling in what from my point of view were major gaps in the textbook and correcting naive and superficial treatments of linguistic matters. I soon concluded that the only way I was likely to be able to offer a relatively exasperation-free course on logic for linguists would be to write a textbook that conformed to my list of desiderata.

It appears that McCawley has succeeded very well in meeting his goals. He obviously likes the text for his own course, and my impression is that it is a very admirable textbook. After a fairly standard introduction to logic, supplemented by his personal views on a number of issues, he summarizes from a large number of other works on other areas of logic. The result is a book that can be used as an introduction and reference to a very broad range of works. No other book gives anywhere near as broad a coverage, and no other book looks at logic from such a linguistic perspective.

Another unique contribution of this book is McCawley's personal perspective on logic. He argues very effectively against some of the traditional assumptions in logic. For example, he disagrees with the traditional use of *only if*. He says that elementary logic texts commonly contain statements to the effect that 'If A, then B' can be paraphrased by 'A only if B', illustrated by pairs of sentences such as: 'If all men are mortal, then Aristotle is mortal', which is claimed to mean the same thing as 'All men are mortal only if Aristotle is mortal'. But he says it is in fact not at all easy to find pairs of sentences that work that way. He gives a number of examples that don't, including: 'If you're boiled in oil, you'll die', versus 'You'll be boiled in oil only if you die', and 'If Mike straightens his tie once more, I'll kill him', versus 'Mike will straighten his tie once more only if I kill him'. From the *only if* direction he gives the following examples: 'My pulse goes above 100 only if I do heavy exercise', versus 'If my pulse goes above 100, I do heavy exercise'. He proposes that *not A if not B* is a much better paraphrase of *only if*. This gives: 'If I don't do heavy exercise, my pulse doesn't go above 100'. He then goes on to propose an analysis of *only* and of *if* within which *only if* can be treated as a combination of the ordinary meanings of the two words. His approach makes a lot more sense to me than the way I have usually seen *only if* used in logic.

In a similar way he argues against the traditional meaning logicians have placed on *if and only if*, in favor of an analysis that is formed from the meanings of the words. He says it is unfortunate that logicians have long used *only if* and *if and only if* essentially as idioms that do not mean what the phrases usually mean in ordinary English usage. I suppose that logicians would consider this linguistic quibbling because they always knew they were using the phrases as jargon terms with special definitions, but I enjoyed McCawley's arguments and examples very much. He does well in linguistic argumentation and in finding good examples of sentences to back up his arguments. Other sections that I especially enjoyed include his argument that *and* is a multi-term predicate instead of a binary one as has been traditional in logic, his discussion of the need for vacuous sets, and his arguments against some of the traditional usage of unrestricted qualifiers.

I think most field linguists could understand the content of this book. McCawley does well at introducing the terms and concepts he uses. On the other hand, it is a dense book with a lot of information packed into it. His efforts to summarize and critique so much material in such a limited space leads to quite heavy reading. I have read some of the original works that he refers to, and their treatment of the topics that appear only as summaries in McCawley are longer and more explanatory, hence easier to read. I think the best way to enjoy McCawley's book would be to hear his lectures along with it. Failing that, one needs to add some outside reading. The book is the text for a two-semester graduate course, and to best benefit from it one needs to put in a significant amount of time and effort.

In thinking about the relevance of logic to translation, an insight I got from the book is that logic can be viewed as a form of semantic analysis. It appears that much of what logicians have been doing for centuries is trying to create notational languages that express the relationships expressed by natural languages in a completely unambiguous way. They want this notation to consist of a minimal number of symbols—each with a precise definition. The resulting language should be one into which any natural language sentence can be translated. Performing such a translation should give a logical form that is independent of the source language. It should also reveal any structural ambiguities in the source sentence. With that concept of logic, it is not surprising that machine translation developers have been very interested in logic. They want a notation that can represent fully and unambiguously the meaning of a text. Even human translation should be aided by ways of making explicit all aspects of the meaning of a text. If nothing else, the effort to do this requires one to ask a lot of hard questions about the meaning.

While McCawley does not say much about translation, he does discuss many areas of semantics and pragmatics that have been brought to prominence by machine translation efforts. Examples include sets, mass expressions, speech acts, implicature, and presuppositions.

This book deserves a bit of silliness in its review because it has a silly title. In that vein, another silly title could be: *More than Most Linguists have Ever Wanted to Know about Logic.* McCawley is not for those who want just an introduction or a quick overview, but for a linguist with a serious interest in learning more about logic, McCawley is a great way to go deeper, and is a wonderful reference to other sources.

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The grammar of space. By SOTERIA SVOROU. Amsterdam/Philadelphia: John Benjamins Publishing Company. 1994. 304 pp.
Cloth $85.00, paper $29.95.

Reviewed by GEORGE HUTTAR
SIL—Vice President, Academic Affairs

No matter what language you are learning right now, it is almost certain to have some forms in it that BOTH (1) designate a body part, like *back* AND (2) either in the same form or a phonologically similar (and historically related) form designate some spatial relationship, like *in back of*. Probably there are some of these forms that also designate some temporal relationship, too, as in *We'll move the meeting* ***back*** *a week*.

Why should this be so? And why should some other lexemes, like those for 'sky' and 'field', also show up in a lot of languages as locative and sometimes temporal forms? If you've ever been intrigued by these ties between locational forms and other forms (such as body part terms) in 'your' language or other languages—or by other ties between language and our bodily and physical environment—you'll probably enjoy dipping into this fascinating book. You'll get a better understanding of how that language works, too.

Using 26 randomly selected, unrelated languages as an empirical base, S investigates (1) 'Where do spatial terms (like various locational prepositions and affixes) come from?' and (2) 'In what non-spatial (e.g., temporal) ways are these spatial terms used?' (Chap. 2, 'General methodology', pp. 41-60, gives details on sampling and the rest of S's methodology—it is important, but most field workers can safely give it lowest priority).

Sure enough, body part terms are a major source of 'spatial grams'—most often in a human-based analogy (where something like 'face' or 'mouth' gives rise to terms for 'front', while 'back' gives rise to 'in back of'), but in some cultures in an animal-based one (with 'head' for 'front', and 'back' for 'top'—think of an animal on all fours). Another nominal source of spatial terms is environmental landmark terms (e.g., 'sky' giving rise to 'top', and 'field' giving rise to 'out'). There are other nominal sources, too, and also verbal sources: in English, e.g., some participles function analogously to prepositions—as in '**Preceding/Before/Following/After** the final exam, there will be a 15-minute pep rally'. Another verbal source of spatial grams is found in serial verb constructions where forms very similar to verbs of motion or location occur with the main verb of a clause to signal location or movement notions: 'at', 'in', 'to', 'from', 'through', 'up', and 'down'. These are found in Chinese, Korean, Turkish, some language families of West Africa, and most or all Creoles with historical ties to West Africa. In the following example from Ndyuka, a Creole of Suriname, there are two such spatial grams that are (derived from) verbs of motion:

> *Ma mi á tyai en* ***komoto*** *a bakaa* ***go*** *a Ndyuka.*
> But 1sg not carry 3sg come-out at outsider go at Ndyuka
> 'But I didn't bring him **from** outside **to** Ndyuka territory.'

Whatever your theory of what's going on here (some say that metaphor is at work, for example), these phenomena all make sense intuitively—we're not surprised to find lots of languages with the term for the human back similar to a term meaning 'in back of' or 'after in time', while we would be very surprised to find a language in which the term for the human face was related to terms with such meanings. All this is more evidence for the view that the nature of language, and of each language, is determined to a great degree by human nature and experience—what our minds and bodies and physical environment are like. Lakoff (1987) is perhaps the best known argument for this position., but S makes at least as much use of Langacker's (e.g., 1991) 'cognitive grammar' approach, including his 'Landmark' and 'Trajector' terminology as a way to clearly describe the spatial relationships she is dealing with. You don't need to know Lakoff or Langacker's work to understand and appreciate what S is saying; you can take the opposite approach and let S's clear exposition give you a head start on cognitive linguistics in general.

S's work ties in not only with current cognitive emphases in descriptive linguistics, but also with current work on grammatic(al)ization—another subdiscipline offering plenty of useful and interesting insights into the structure and workings (and history) of 'your' language. For an introduction, see Heine, Claudi and Hünnemeyer (1991) or Hopper and Traugott (1993). (My earlier paragraph on sources of spatial grams is a quick summary of Chapter 3, 'The evolution of spatial grams', pp. 61-121, in which the notion of grammaticalization figures prominently, but as with cognitive studies, you don't need to be versed in grammaticalization to appreciate this chapter—you can let this chapter [or the whole book] be an intriguing introduction to what grammaticalization is all about.)

In Chap. 4, 'The front-back axis', pp. 123-201, S focuses on how languages express ideas related to the regions in front of and behind themselves, other objects, and, temporally, other events. Her set of research questions exemplifies the kinds of things she's investigating throughout the book (124):

> (a) Is there a FRONT-BACK semantic subdomain reflecting a basic cognitive distinction, and how is it structured?
> (b) What kinds of spatial situations (static, dynamic?) can be described by F-/B-REGION grams?
> (c) Do languages use this distinction to describe domains other than the spatial one?
> (d) What does the structure of the semantic subdomain reveal about the grammaticization status of the grams, and issues of grammaticization, in general?
> (e) Assuming the cognitive basicness of this distinction, how similar are languages with respect to the lexical and morphosyntactic devices they use?

The answer to the last question deals with the use of adpositions and affixes (interestingly enough, spatial grams tend not to be highly phonologically fused with the element they go with [their 'scope']); the scope elements of spatial grams (most frequently nouns and pronouns, then verbs and clauses); relative order of spatial grams and their scope elements; and internal structure of grams (*behind* is monomorphematic; *in back of* is compound).

All of the foregoing is concisely brought together in Chap. 5, 'Conclusion,' pp. 203-212.

Whether you are interested in one or two specific languages, or in language in general, you'll find much of interest and value in browsing in this book. I hope you end up reading the whole thing.

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Talking from 9 to 5: How women's and men's conversational styles affect who gets heard, who gets credit, and what gets done at work.

By DEBORAH TANNEN. London: Virago Press (also: New York: William Morrow and Company, Inc.). 1994. $23.00.

Reviewed by RICHARD H. C. LEE
SIL—United Kingdom

Background and aim. This book is, in Tannen's own words, the third in a series. Her earlier works—*That's not what I meant! How conversational style makes or breaks your relations with others* and *You just don't understand: Women and men in conversation* are important studies of differing conversational styles, with the second book taking a narrower focus than the first. In *Talking from 9 to 5*, the focus is narrowed still further to the setting of the workplace, and as the subtitle implies, studies different interactional styles and assumptions in order to discover how work is affected. As she states in her preface, the work milieu is predominantly that of offices. Conversational analysis in other milieu is also obviously of interest to the sociolinguist, but that is not within the scope of this book. The author, as well as drawing on her own extensive knowledge of the field of conversational analysis, has undertaken considerable and extensive research for this book.

Comments: As well as being a linguistic study, this book provides useful sociological insights. It is very clear that language is behavior since so much of the interaction between employers and employees, or between colleagues, hinges on the way in which information (requests, commands, etc.) are framed or encoded. With respect to one of Tannen's earlier works, cited above, many people have often said to the author: 'Your book saved my marriage.' One could well expect from the findings presented in *Talking from 9 to 5*, that similarly, this book might save someone's job or at least position within their firm.

Tannen presents her findings under a number of headings: 'Women and men talking on the job'; 'Why don't you say what you mean?'; 'Marked: women in the market place'; 'The glass ceiling'; and so on. This work is as much a study about expectations of roles as it is about how these expectations are realized or defeated in conversational interaction. One notable example concerns indirectness. Assumptions about indirectness vary from culture to culture, and (at least within white American culture) between males and females. Tannen shows how typically men will be direct in their statements but if a female colleague or employee is similarly direct or authoritative, it is felt by men to be inappropriate. A famous example is that of Margaret Thatcher:

> After her retirement, Margaret Thatcher was described in the press as 'bossy'. Whereas girls are ready to stick this label on each other because they don't think any girl should boss the others around, it seems odd to apply it to Thatcher, who, after all, was the boss. And this is the rub: Standards of behavior applied to women are based on roles that do not include being boss.

Other sections deal insightfully with intercultural assumptions on interaction at work between employers and employees. There is a number of references to approaches to these issues in Japanese contexts. For example (pp. 167-169), Tannen quotes a Japanese researcher, Harada, who found that one strategy for one Japanese (male) employer to soften the authoritativeness of a request is to use female particles rather than male ones at the end of his requests—in other words, it was an indirect way of getting the employee to volunteer, rather than for her to feel that she was being ordered. On the other hand, the same employer would use the male particle *ka*, when he considered that a decision was being made or an authoritarian statement was necessary. Tannen's comment that 'femaleness is associated with softeners, mitigation and politeness, whereas maleness is associated with authority' (p. 168) reflects attitudes in the world of work which were almost predictable and universal (and, by implication, cross-cultural) in her case studies.

Summary. *Talking from 9 to 5* presents a variety of themes (within the overall context) and a wide range of case studies. The interplay of assumptions, behavior and linguistic strategy is complex as these studies show. One wishes that the author had gathered together, in a chapter on their own, some tighter, more specifically linguistic conclusions from these studies, although her insights and sociological conclusions are perceptive and should be heeded. This book is a study which will be of interest both to linguists (particularly sociolinguists and conversational analysts) and to employers and managers in the world of work. It demonstrates how communication can become miscommunication because of differing assumptions both between the genders and between different cultures and how such miscommunication can affect the tasks that need to be done. Understanding just how such misunderstandings can arise can thus be a major solution to such problems. This is one of the stated aims of the book and in this the author overwhelmingly succeeds.

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Challenges in natural language processing. Studies in natural language processing. By MADELEINE BATES and RALPH M. WEISCHEDEL. Oxford: Cambridge University Press. 1993. 296 pp. Hardcover $49.95.

Reviewed by MIKE MAXWELL
SIL—Academic Computing

Predicting the future is easy, unless you will be held to your predictions. The book being reviewed consists of predictions as delivered in the form of papers from a symposium in 1989 entitled 'Future Directions in Natural Language Processing'. The participants were asked to focus on the 'problems and challenges that will face the field of computational linguistics in the next two to ten years'. That the book did not reach publication until several years later (and is being reviewed several years after that) might imply that many of the predictions should have been fulfilled by now, and would therefore be of only historical interest. Such is not the case—the challenges of 1989 remain to a great extent the challenges of 1996.

The editors divide natural language (p. 5) into the areas of syntax, semantics, and pragmatics (lexicology, while not appearing in this list, is prominent in the discussion). Their classification is doubtless a reflection of the fact that the symposium was sponsored by Bolt Beranek and Newman, Inc. (BBN), a US-based think tank; furthermore, virtually all the participants were employed by American institutions. Fortunately, some of the participants took a broader view of things, and phonology (mostly prosodic structure) does come into play in two of the articles (Pierrehumbert's and Steedman's).

Following an overview of 'Critical challenges for natural language processing' by the editors, together with Robert J. Bobrow, roughly a third of the book is devoted to issues of the lexicon. The articles in this section are: 'The contribution of lexicography' by B.T. Sue Atkins; 'The contribution of linguistics' (a more accurate title would have been 'the contribution of linguistics to lexicography') by Beth Levin; and 'The contribution of computational lexicography' by Branimir K. Boguracy. All address the problem of trying to utilize machine-readable dictionaries in natural language processing (NLP). While this might seem trivial, it is not—dictionaries are designed for people to use, and the interpretation of a dictionary entry therefore relies on common sense—something which computers are notorious for lacking. Further problems lurk in the interpretation of typesetting codes (which presumably encode useful information, but only implicitly) and inconsistency within a single dictionary or between dictionaries. The authors show how linguistics might inform the extraction of this information, but the process is clearly only partly automatable, and will keep computational linguists employed for many years.

Another section of the book is devoted to discourse analysis. Rebecca J. Passonneau's article, 'Getting and keeping the center of attention', might have fit better into a book about discourse analysis. It is not so much a prediction of how work in discourse analysis might prove useful to NLP, as it is a case study comparing the usage of *it* and *that*. Mark Steedman's article 'Surface structure, intonation, and discourse meaning' shows how analysis of the intonational structure of spoken speech might work together with a Combinatory Categorial Grammar in the process of speech recognition or synthesis.

Two papers discuss semantics and knowledge representation: 'Events, situations, and adverbs' by Robert C. Moore; and 'Natural language, knowledge representation, and logical form' by James F. Allen. The former is a study of a particular problem in adverbs. Like Passonneau's contribution, this one might be more at home in a book on linguistics rather than NLP. Allen's article on the other hand concerns a central issue of NLP: How to steer between the Scylla of semantic representations which have adequate expressive power but are computationally intractable, and the Charybdis of knowledge representation systems which are (more or less) tractable but inadequate for encoding the meaning of natural language. There are no easy solutions to this dilemma.

The section on spoken language systems consists of a single paper by Janet Pierrehumbert entitled 'Prosody, intonation, and speech technology' (although Steedman's article would have fit in this section equally well). The author makes the interesting point that the influence of intonation on allophonic variation is such that machine recognition of segments (phonemes, roughly) cannot be expected to succeed apart from the recognition of prosody. Like Steedman, she also emphasizes the importance of intonation for pragmatic inference. Detracting from this paper are several poorly labeled charts and graphs. For instance, the X-axis of figure 9.2 is labeled with meaningless numbers while the X-axis of figure 9.4 is completely unlabeled, as are the multiple curves depicted in the graph.

The final section of the book summarizes a brainstorming session in which the participants highlighted research areas they considered critical to the success of NLP. Unfortunately, the items mentioned are simply listed in the order they were proposed, with no indication of ranking by importance; a summary would be 'everything'. The editors do, however, suggest that one might emphasize the need for methods dealing with large amounts of data and partial understanding, and for ways of evaluating the effectiveness of NLP techniques, topics which have indeed been at the forefront of work in recent years (judging from the papers appearing in *Computational Linguistics*, or given at conferences).

The reader of *Notes on Linguistics* who has read this far may well ask, 'what does this have to do with field linguists?' The answer is, unfortunately, 'not much.' It would appear that many of the issues facing computational linguists (at least in the US) are problems that field linguists only wish they had: dealing with large corpora and large (or even multiple) dictionaries. The challenges with which many of us struggle, such as describing the phonology or morphology of a language, seem not to be of great concern here (although one wonders whether phonology and morphology might have received more prominence had the symposium been held in Europe or the Far East). While there is concern with syntactic grammars, even there the problems are evidently viewed as largely solved—a situation to which the field linguist can only aspire.

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Linguistic diversity and national unity: Language ecology in Thailand.

By WILLIAM SMALLEY. Chicago: The University of Chicago Press. 1994. 436 pp.

Reviewed by BRIAN MIGLIAZZA
SIL—Thailand Group

I heartily recommend this as an excellent book about the language situation in Thailand which is not only chocked-full of facts and information, but also very readable. All the chapters and subsections are well-written in clear, absorbing prose that make it fun to browse through the wealth of attractively presented information. Several factors pleasantly conspire to make this book blessedly better than your average tome: 1) the author's extensive background in the region and wide linguistic interests, 2) the broad range of topics covered, and 3) the engaging layout. The author (who unabashedly describes himself as a 'missionary linguist' in a short statement at the front of the book) was a Christian and Missionary Alliance missionary in Laos from 1950 to about 1955 and then worked as a United

Bible Society consultant until 1977 in Vietnam, Laos, and Thailand. After that he taught linguistics at Bethel College for a number of years before retiring. He assisted with language projects among many minority groups of Mainland Southeast Asia (especially with the Khmu, Northern Khmer, Hmong, and Kuy peoples) achieving a prodigious academic output of which this excellent book is only the latest.

Ostensibly, at first glance, this book is another 'dry' sociolinguistic text on the 'roles which languages play in the country', 'interactions between language and their environments', and other such usual topics—but when you begin to skim through it, you begin to get excited by the range of topics covered. Actually this book covers much more than just sociolinguistics—it is an ethnolinguistic introduction to Mainland Southeast Asia (MSEA).

- You can feast on the wealth of linguistic information—historical reconstruction, phonology, syntax, semantics, discourse, language registers used by different social strata.
- You can stuff yourself on the wealth of historical material—peoples, cultures, their migrations and origins.
- You can gorge yourself on language descriptions of languages in every major language family.
- You can glut yourself on literacy and writing systems—explanations of the Thai writing system, orthographies in use, experimental literacy projects using the mother-tongue as the medium of instruction, and considerations in adapting a Thai-based orthography for minority languages.

There are some interesting things in it to be learned about sociolinguistics. Probably I found them interesting because they were presented as puzzles and mysteries to be solved, such as: why is language seemingly not a politically divisive factor in Thailand when in many other countries language diversity is deemed sufficient cause for wars and rebellions? Why do nearly eighty minority languages quietly acquiesce to a subordinate status to Standard Thai? Why is Standard Thai dominant when only 20 percent of the people are born speaking Standard Thai as their sole mother tongue? Why is English, with no native speakers, so well accepted in Thailand as critically important for the whole country? The answers to these and other exciting questions are clearly answered by Smalley, mostly in the final section of the book under the heading of 'Trans-Language Issues'.

The book is a one-stop shopping emporium of ethnolinguistic information. Most likely your burning questions about Thailand and its languages are answered somewhere in the book.

- Want to know what are the kinship terms of standard Thai? Turn to page 59 where you find a complete listing of the terms noting the differences between English and Thai kinship terminology.
- Do you like maps? Page 8 has a map of the 73 provinces of Thailand (though it does not include the two latest provinces, which bring the total to 75); page 68 shows the geographical distribution of the four regional languages of Thailand: Northern Thai (Kammuang), Central Thai (Thaiklang-Standard Thai), Northeastern Thai (Lao), and Southern Thai (Paktay); and page 305 illustrates the dispersion of Mon-Khmer languages throughout south and southeast Asia.
- Have you forgotten where the languages of this region fit in the family tree? Pages 298-302 provide nice language family trees for Tai, Austro-Thai, Mon-Khmer, and Sino-Tibetan.
- Always wondered about Thai script and tones? Pages 183-195 tell you about the origins of the Thai letters, the tone classes and tone boxes, and how the tones and letters interacted historically to produce the modern Thai writing complexity.

The book is organized into the following sections:

- Part I 'Languages of the Nation as Whole' (international languages and Standard Thai with it's varieties and social dimensions)
- Part II 'Major Regional Languages' (Northern Thai, Northeastern Thai, Southern Thai, and Central Thai)
- Part III 'Marginal Regional Languages' (Shan, Karen, Northern Khmer, Kuy, Pattani Malay)
- Part IV 'Other Language Categories' (development of Tai languages, languages of Thai towns, marginal languages [Mon, Pray, Mal, Hmong], enclave languages)
- Part V 'Trans-Language Issues'

There is an excellent introduction, good index, and a bibliography which would assist anyone in reading up on most aspects of MSEA languages and linguistics. The bibliography is outstanding for including many of the local Thai scholars who have written extensively on these issues, such as Dr. Theraphan and Dr. Amara of Chulalongkorn University, Dr. Suwilai of Mahidol University, and others. An abundance of tables, figures, charts, and maps help succinctly summarize vast amounts of information in an easy to understand format. Each chapter has a handy summary section, and the appendices provide: 1) a list of the languages spoken in Thailand organized by their place in Smalley's hierarchy, 2) language population estimates for these languages, and 3) a description of the symbols Smalley used to transcribe non-English words. As the author says (p. 277) the first parts of the book tell **what** the linguistic situation is about, while the last part (Part V 'Trans-Language Issues') steps back from the detail and discusses the larger issues of **how and why**. The answers to those interesting socio-linguistic puzzles are found in the chapters:

- 'Writing & Education'—the successes and limits of Thailand's educational system in using Standard Thai as the medium for learning
- 'Change & Development'—Thailand's linguistic diversity does not seem likely to diminish
- 'Language & Ethnicity'—Thailand's unity in diversity becomes possible as people accept a linguistic and ethnic hierarchy with porous boundaries
- 'Minority Problem as Thai Problem'—summary of reasons for national unity in the midst of linguistic diversity

For literacy and script development, chapter 16 'Writing & Education' is an interesting recap and update on a previous book that Smalley produced in 1976—'Phonemes and orthography: Language planning in ten minority languages of Thailand, Canberra: Department of Linguistics, The Australian National University. Those working in Thailand have been greatly helped by the careful thought put into describing the reasons and assumptions involved in creating a Thai-based orthography for minority languages. Smalley goes on to discuss the classic problems of vernacular education and promoting the use of vernacular literacy materials. In his opinion (pp. 280-281):

> Thailand's schools have [greatly] helped to establish the unity which exists in Thailand's diversity ... [and] have been remarkably successful in solidifying Standard Thai ... as the language of the nation.

There are many benefits in using the national script for minority languages within the country but there are also some technical difficulties. When using the Thai-based writing system for minority languages there have been several main problems: 1) the Thai script can be complex and cumbersome when shifted to languages which are very different from Standard Thai; 2) sometimes there is no suitable Thai graph for a particular sound in another language so the Thai system has to be modified; 3) the Thai script is sometimes not acceptable to those who already have another established writing system; 4) the need for standardized spelling between people using the same writing system; 5) the particularities of the correspondences between the system developed for the minority language and the Standard Thai system.

I found this book extremely interesting, practical, down-to-earth, and fun reading. It is truly a mini reference manual. Even if you don't live and work in this part of the world, I think you will appreciate the universal principles that are developed from Smalley's case study of the Thailand situation. There is a generous use of Thai script in the book since it is about the languages of Thailand which may be a burden for those not accustomed to this orthography but it can also be an inspiration to learn something about how other scripts work. By reading this one book you will receive an excellent introduction to the MSEA linguistic area, including some history, an overview of the diverse languages and language families in the region, a grasp of the complexity of this region's language intermixing, general linguistic features of various languages, and some understanding of the many scripts in use here. Happy reading!

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Case. By BARRY J. BLAKE. Cambridge Textbooks in Linguistics series.
Cambridge: Cambridge University Press. 1994.
Hardback $59.95, paper $19.95

Reviewed by BRIAN O'HERIN
SIL—North Eurasia Group

Case most commonly refers to the paradigmatic morphological marking of nouns to indicate various grammatical relationships. 'Case is a system of marking dependent nouns for the type of relationship they bear to their heads' (p. 1). In this book, Blake focuses his discussion of case not on the morphological aspects of case (though he does discuss this), but on the function of distinguishing grammatical relationships.

The book consists of six chapters: (1) Overview; (2) Problems in describing Case systems; (3) Modern approaches to Case; (4) Distribution of Case marking; (5) Survey of Case marking; and (6) Life cycle of Case systems. Material following these chapters includes endnotes, a very useful glossary, a guide to further reading, references, and separate author, language, and subject indexes.

Chapter 3 discusses different modern treatments of case, including Government and Binding (GB), Fillmore's (1968) notion of a universal set of atomic semantic roles, Relational grammar (RG), Localist Case grammar, and lexicase. Although an anachronism here, there is an interesting and valuable discussion of Panini's theory of case. The chapter closes with a discussion of the hierarchical arrangement of various concepts bearing on case, namely grammatical relations, cases, case marking and grammatical roles.

The discussion of each of the treatments of case is primarily descriptive and illustrative, with one exception. I was somewhat disappointed with the coverage of GB. The description is minimal, and a highly disproportionate amount of space consists of pointing out problems within the theory. As in all theories there are problems, but several of those mentioned in the book have been adequately addressed within the GB literature. The coverage of GB seems disproportionately low with respect to the number of adherents to each theory, their representation in the literature, and the empirical range of data that each covers. In addition, major results achieved within GB are conspicuously missing. For example, no reference is given to the key work by Abney (1987) in discussing the treatment of determiners as the heads of nominal phrases (p. 102).

Chapters 4 and 5 are clearly the most useful to the field linguist, consisting of a classification of different individual cases found in the languages of the world and a discussion of the different types of case systems. In a few places terminological distinctions are belabored to the point that the more important issues of the relations which the various cases express take a back seat to labeling these relations. There is nevertheless useful discussion of case as a means of differentiating grammatical relations. Overt morphological marking on dependent nouns, and possibly on elements in concord with those nouns, is naturally in focus. Other means of marking grammatical relations discussed include word order, cliticization and agreement. Of these, cliticization and agreement are given the broader coverage. Unfortunately, both are subsumed under a single classification which Blake refers to as 'bound pronouns', minimizing the significant differences between these two major types of phenomena.

Core grammatical relations are distinguished from non-core relations. The core relations include the subject of intransitive verbs (S), the agent, or more agentive argument, of transitive verbs (A), and the patient, or less agentive argument, of transitive verbs (P). The non-core relations include peripheral arguments such as instrument, comitative, benefactive, locative, etc. A central theme in the discussion of grammatical relations, particularly the core grammatical relations, is ergativity in which S and P pattern together in opposition to A. This issue is of particular interest to Blake working in Australian languages (and to me because of Caucasian languages). The discussion of ergativity does not serve as an introduction to the topic but provides good discussion for those already familiar with some of the relevant issues.

The greatest drawback to the book is its organization—specifically, chapters 2 and 3 would be better placed later in the book. The importance of the issues discussed in chapter 2, and to a lesser extent those discussed in chapter 3, is not clear until the more foundational material of chapters 4 and 5 is presented. A further result of this ordering of material is that too many of the endnotes consist of references to examples in other parts of the book.

Another drawback, which cannot be attributed to the author, is the layout of tables within the text. Tables consistently occur at the top of the page following their reference, even when there is more than adequate space on the same page. Thus, tables often appear in the middle of unrelated text. This is particularly cumbersome when there is a section break between the reference to a table and the table itself.

The author is a specialist in Australian aboriginal languages and draws heavily on his experience in this field. Examples taken from Australian languages abound and are among the clearest in illustrating various points. The author's style is fairly easy to read, though some sections end rather abruptly with the reader left to follow through on reasoning (which is not always transparent) in order to complete an argument.

Blake describes his intended audience as follows (p. xiv):

> This book is aimed at two types of reader. Firstly it is written for senior students and academics in linguistics. Secondly it is written for senior students and academics whose field is a particular language or group of languages, students of the classical languages, for instance, or scholars of Slavonic.

This statement accurately represents the level of discussion. As such, it is probably not of interest to the typical field worker, although it would be comprehensible to someone specifically interested in the topics of case and grammatical relations. It would be of greater interest to university instructors and to consultants of field workers, particularly in areas of the world in which the local language families make use of morphological case (e.g.

Australian, Caucasian, Dravidian, Indo-European, Mayan, etc.). The wide variety of examples, which seem to accurately represent both the point they are trying to make and the way the example languages actually function, provide a good source of material for instructors teaching a variety of topics, though in some cases a fuller paradigm showing contrasts would be even more useful. Because of the wealth of information it provides, this book, like others in the Cambridge Textbooks in Linguistics series, would be a positive addition to any SIL branch library.

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The semantics of time: Aspectual categorization in Koyukon Athabaskan

Studies in the Anthropology of North American Indians. By MELISSA AXELROD. Lincoln, NE: University of Nebraska Press. 1993. Pp. 209. Cloth $40.00

Reviewed by GILLIAN STORY
SIL—North America Branch

This volume is a revision of the author's 1990 University of Colorado doctoral dissertation.

Koyukon is an Alaskan member of the Athabaskan language family. As in Athabaskan in general, every Koyukon verb is marked for both mode and aspect (p.18).

Mode. Athabaskan 'mode' could be called 'tense-mode' as observed by Kari (1979.17), and is marked both prefixally and in the verb stem. In Koyukon, the modal categories are imperfective (I), perfective (P), future (F), and optative (O). Axelrod divides these into realis categories (I and P) and irrealis (F and O), the first subsuming aspectual categories and the second both tense and mood. (However, imperfectives may also be irrealis: imperatives are imperfective forms and prohibitives can be imperfective. In some Athabaskan languages, there is no F paradigm and 'future' is expressed by an imperfective form + postverbal particle.)

The prefixes which Axelrod generally calls imperfective and perfective have been called 'conjugation prefixes' in the more recent Athabaskan literature. The imperfective prefix proper is actually zero and the perfective prefix proper (Perf) occurs right of the conjugation prefixes as shown in Axelrod's chart of the verb prefixes. Axelrod says of these conjugation prefixes that choice between them depends on aspect (p.19). Rather, the choice of conjugation prefix and aspect go hand-in-hand as may be seen by considering the derivation of a specific verb form.

Theme and base. Before stepping through the process of deriving a specific verb form it will be necessary to define 'theme' and 'base' as they are used of Athabaskan verb forms. A verb theme comprises a verb root, one of four so-called classifier prefixes,[1] and the prefixes, if any, that obligatorily occur with that verb root. Athabaskan verb roots are often quite abstract semantically and the theme is the minimum verbal unit to which meaning can be readily assigned. It has been characterized as the basic unit of the Athabaskan verbal lexicon (Rice 1989.938).

A verb base is the derivational part of a verb word. Certain categories that might have been considered inflectional are generally included in the verb base, including aspect. The reason for this may become plain as we consider the derivation of a verb word below. Inflectional categories include mode and person and may, depending on the analyst and/or the language, include polarity.

Axelrod treats polarity as derivational. She also considers mode to be derivational in Koyukon though she allows in a footnote (p. 17) that it could be considered inflectional. In fact, it is 'conjugation' that is derivational and closely associated with aspect, and mode is inflectional; when Axelrod speaks of 'mode', she is frequently meaning 'conjugation'. The derivation of a verb form below should clarify the distinction.

Verb stem sets. We will consider 'aspect' in further detail below, but for the moment we need to know that aspect is primarily defined by a verb stem set. Historically, verb roots are suffixed to yield stems for each of the modes (in Koyukon, for the four modes I, P, F, and O), and the suffixation pattern is different for each of the aspects. The analysis of verb stem sets owes much to the comparative work of Leer (1979).

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[1] The function of the classifier prefixes is typically concerned with transitivity.

Derivation of a verb form. Let us consider, then, the derivation of a verb word to illustrate the function of aspect, mode, and other verbal categories in Koyukon or indeed in Athabaskan in general. Suppose we want to say, 'S/he took it (a wet pelt) out the door':

1. To 'take, bring, put down, pick up, carry in/down/out, etc.' is expressed by one of the (classificatory) motion themes; from these we select the theme *O + G + 0 + tlaakk* (where *O* indicates that this theme is transitive, *G* that the theme may take gender prefixes, *0* is a classifier (CL), and *tlaakk* is the verb root) 'handle a mushy, wet, sticky, messy, disorderly O' to describe the handling of wet pelts.

2. To this we add the adverbial prefix *tlee-* 'out the door' which requires momentaneous aspect and (*n n*) conjugation prefixes; that is, we apply the 'aspectual derivation' *tlee* (*n n*) *mom.* to the theme we have selected. Each aspectual derivation is mutually exclusive with others. (*n n*) means that when we come to inflect the form for mode, if the mode is imperfective or perfective, the conjugation prefix (Conj) is *ne-* in either case; *mom.* means that the verb stem is selected from a momentaneous aspect stem set (of the root *tlaakk* in this case which has a (positive) momentaneous stem set I *tlaah, P tlaakk, F tluhtl, O tlaah*).

3. There are 'super-aspectual derivations' that could be applied at this point, any of which may modify the stem set and conjugation pattern, and which, unlike the aspectual derivations, are not generally mutually exclusive. However, these derivations are optional and we have arrived at a verb base, *tlee + O + G + (n n) + 0 + (tlaah, tlaakk, tluhtl, tlaah)* 'take out the door a wet, mushy O'.

4. Finally, the base is inflected for gender (if applicable), mode and polarity (both together, following Kari 1979.59), and person. The *de-* gender prefix is used, when the theme contained within the base takes gender, with objects of transitive verbs that denote, among other things, wet pelts, and is therefore selected in this case. For mode and polarity we select perfective (positive) (and therefore the *ne-* conjugation prefix, see 2. above), and for person a zero third person subject and an object prefix *ye-*. The final form is therefore (after morphophonemic processes):

tleeyedaaneetlaakk 's/he took it (wet pelt) out the door'

tlee +	ye +	de +	ne +	ne +	0 +	0 +	tlaakk
ADV	3sgO	G	Conj	Perf	3sgS	CL	handle.mush.P.MOM.[2]

Negative verb forms. Under 4. we have followed Kari rather than Axelrod (who, as noted, treats polarity as derivational) in applying mode and polarity together. Negativity is marked both prefixally and in the verb stem, and, in the case of Koyukon, by addition of the suffix *-aa* (see Thompson et al. 1983). Prefixally, a non-perfective negative prefix *le-* or perfective negative prefix ee- occurs in place of the conjugation prefixes. In non-perfective negative forms, certain stem-finals are voiced by the addition of the suffix *-aa* and the stem-finals are therefore predictable from the positive stem set, but in the case of the perfective negative (PN) the stem-final is not predictable from the corresponding positive perfective stem. For this reason, Kari (1979), in treating Ahtna (another Alaskan Athabaskan language), sets up aspectual stem sets which include the PN stem.[3]

Aspect. Aspect, as noted above, is defined by stem set and aspects have been given such labels as momentaneous, continuative, durative, repetitive, and semelfactive. Stem sets of a given aspect are described in terms of the basic forms of roots (including CV(:)X, CV:, CV(:)R, where X is any obstruent and R any resonant), and patterns of vowel lengthening, vowel ablaut, and spirantization of the root final due to consonantal suffixation, etc.

However, two aspectual derivations may contain the same stem set (at least in the case of a given root), even though aspect is primarily defined by stem set. (For example, the persistive and semelfactive and the consecutive and conclusive stem sets of the Koyukon root *tlaakk* are the same, p. 21.) Stem set is not the only criterion by which aspect is determined. Four criteria according to Axelrod determine aspect:

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[2] The morpheme-by-morpheme analysis here does not follow the labeling system used by Axelrod; it also includes the perfective prefix proper (Perf) (which gives rise to the long vowel ee immediately before the stem in the present form). Axelrod's (purposeful) neglect (p. 19, fn.12) of this prefix is perhaps the reason for the inconsistent analysis of *ghe* in examples (35) on p. 62.

[3] Not all Athabaskan languages have special negative verb forms but only certain of those spoken in Alaska and western Canada.

(1) stem set

(2) prefix morphology (adverbial prefixes and conjugational choice contained in aspectual derivational strings-such as *tlee (n n) mom*. where *tlee* requires a momentaneous stem set)

(3) aspectual meaning

(4) distributional potential (that is, what other aspectual derivations are there of the theme which is contained in a given verb form-this question leads us into consideration of 'theme categories', of which more below).

Axelrod has a section (4.4) in which the determination of aspect of particular verb forms is discussed when these criteria may not give an immediate analysis. She takes two verb forms, which, given the shape of the verb root contained in them:

(1) They have stem sets which could be persistive, repetitive, continuative, or distributive (the last a super-aspect, see 3. above).

(2) Both forms contain a prefix *ne-* which could be the continuative prefix (occurring in many continuative aspectual derivational strings) or the distributive prefix (occurring in all distributional super-aspectual derivational strings), but the *(0 gh)* conjugation pattern, which occurs in the imperfective and perfective of both verb bases concerned, is not found in any continuative aspectual derivation or distributive super-aspectual derivation, ruling out continuative and distributive analyses.

(3) The verb forms all have a component of meaning ('repeated back and forth, here and there movement') which could have been consistent with any one of these aspects/super-aspects.

Finally the verb forms are compared with others which contain a prefix *ne-*, are (*0 gh*) conjugational, and are of parallel meaning, and the stem sets of these examined. One of these has a stem set which is unambiguously persistive. This pattern-matching procedure is equivalent to criterion (4) above since it is probable that all these verbs are derived from themes contained in the same theme category.

Super-aspect. Super-aspectual derivations are applied following the aspectual derivation.[4] They differ from aspectual derivations in two respects besides their order in the derivation process: (1) they are optional, (2) certain of them may co-occur with each other. Like aspectual derivations, they select a conjugational pattern and a stem set, overriding the conjugational pattern and stem set of the aspectual derivation (hence 'super-aspect'). In Koyukon there are four super-aspects: the distributive, multiple ('multiplicity of subject/object referents'), customary, and progressive. Distributive and multiple derivations contain the prefixes *ne-* 'distributive' and *yen-* 'multiple' respectively.

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[4] In the above discussion, I have been following Kari for whom there is a sequence of derivational (and inflectional) processes; Axelrod does not set up levels of derivation (p. 146 fn.). For

Theme categories. The topics we have discussed so far are treated in chapters 2, 3, and 4 in Axelrod: Chapter 2 The Koyukon language, Chapter 3 Mode and aspect, Chapter 4 The aspectual system. Chapter 5 is titled Verb theme categories.

There are certain groups of verb themes which are readily recognized as a 'family'; for example, the 'motion' themes denoting 'walk', 'swim', 'run', 'fly', etc. which have derivations glossing 'arrive ___ing', 'start ___ing', '___ around and about', '___ across', and many others. The motion themes constitute one theme category but it has been found that the majority of verb themes in an Athabaskan language can be assigned to a theme category. Such analyses have been published for Ahtna (Kari 1979, 1990), Navajo

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Kari (1990), aspectual derivations precede super-aspectual derivations (for, as mentioned above, the latter select aspectual stem sets and conjugational patterns which override the aspectual derivational selections).

There are in addition two other levels, the post-aspectual (for example, the 'inceptive') following the aspectual and preceding the super-aspectual, and the non-aspectual (causative, benefactive, reflexive, and others) following the super-aspectual. They are characterized by the following differences:

	selects an aspectual stem set	selects a conjugation pattern	is obligatory	is exclusive of other derivations of the same type
aspectual derivation	yes	yes	yes	yes
post-aspectual derivation	no	yes	no	no
super-aspectual derivation	yes	yes	no	no
non-aspectual derivation	no	no	no	no

Axelrod uses parallel terms, substituting 'aspect-dependent derivations' for 'aspectual derivations', and 'non-aspect-dependent derivations' for 'non-aspectual derivations'. Aspectual derivations only depend on aspect in the sense that each contain an aspect as one of their components.

(Hardy 1979, Young & Morgan 1987, 1992), and now in the present volume for Koyukon, the Navajo and Koyukon analyses building on the work of Kari. Analysis of verb theme categories in Slave(y) has also been published, in Rice 1989; Rice's original analysis was carried out independently of Kari's work but Kari's terminology was adopted subsequently for Slavey.

The theme category membership can therefore be added to the theme exemplified above: *O + G + 0 + tlaakk* (motion-classif.) 'handle a mushy, wet, sticky, messy, disorderly O'; the theme category membership indicates the derivational potential of this theme.

Aspect in discourse. The final chapter of the book is titled 'The role of aspect and theme category in discourse' and centers round the analysis of one narrative text.

Koyukon aspect 'is constrained to a great extent by the semantic character of the verb root and theme' and does not play any perceptible role in global discourse functions. Perfective vs. non-perfective modes on the other hand tend to correlate with high activity vs. background material.

Conclusion. The book is an easier introduction to Athabaskan aspect and verb theme categories than Kari 1979 and can be recommended as a detailed survey of these Athabaskan entities in one Athabaskan language.

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From the Linguistics Department

New International Linguistics Consultant

A newly appointed International Linguistics Consultant for SIL is Lon Diehl. Lon's expertise and experience is primarily in the area of semantics and the lexicon, and in the languages and linguistics of China. Lon is a member of the China Group of SIL. We appreciate Lon's willingness to serve SIL in this capacity, and look forward to his counsel.

Information on Graduate Linguistics Programs

Of interest to our readers considering a graduate study program in linguistics is a review of a recent publication *Research-Doctorate Programs in the United States*, reviewed by Tom Headland and Alex Bolyanatz (pp. 38) in this issue. On behalf of the Texas SIL, Tom Headland offers to answer brief questions from SIL members overseas about study programs, referencing the information in this book. The International Linguistics Coordinator's office would also like SIL members to know that our office maintains a database of graduate programs in linguistics in which SIL members have participated. The Linguistics Coordinator will readily share information from this with any members who wish to inquire, for example, about what specializations are fostered at specific universities, and the degree of willingness at those universities to work with students primarily interested in descriptive field linguistics. Contact the International Linguistics Coordinator; e-mail: lou_hohulin@sil.org

—David Payne

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4-9 August 1996, Jyvaskyla,
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- the functional principles of linguistic organization (such as iconicity and naturalness)
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George Lakoff (UCB)
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Introduction to Government and Binding theory: X-Bar theory applied to languages with other word orders

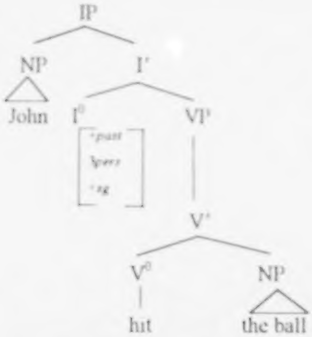
Cheryl A. Black
SIL Mexico Branch and University of North Dakota

In the first two articles in this series (May and August, 1996) we saw that X-Bar Theory can account for the phrase structure of lexical phrases, sentences, and clauses in English, based upon the subcategorization of a head for its complement(s), using only the two basic rules in (1) plus the rules for conjunction and adjunction.

(1) XP → Specifier X'
X' → X^0 Complements

We can refer to English and other SVO languages as **head-initial** and **specifier-initial**, since the specifier comes before X' and the head comes before its complements. This generalization holds in all phrases in English. For example, in sentences the subject is initial in the specifier position and the VP complement follows the head containing nonfinite *to* or the inflection features.[1] Within the VP, the head V precedes the NP object complement. The tree for a simple sentence is given in (2).

(2)



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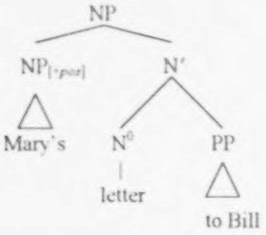
[1] Please refer back to the second article (August, 1996) for explanation of the X-Bar theoretic structure of sentences.

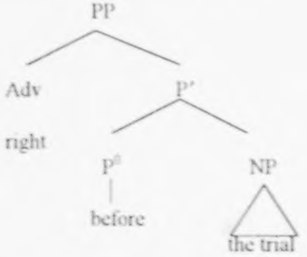
In nominal phrases, either the possessor or the determiner is in the specifier position and they again come before the head, whereas complements follow the head noun.

(3)



Also, in prepositional phrases, words like *right* or *just* may precede the head in the specifier position and the preposition precedes its NP complement.

(4)



But not all languages have these orders. Can the X-bar rules work for them, too? We will look at each major word order in turn.

1. SOV Languages

Consider the following data from Abaza, a Northwest Caucasian language (O'Herin 1993). (5) gives an example of a sentence with a transitive verb, (6) shows a possessed noun phrase, and example (7) is a PP.[2]

(5) *Hl-pa xsʲı yıʃın.*
our-son milk drank
'Our son drank the milk.'

---

[2] Abbreviations: 3SM = third person singular masculine pronoun, 3SI = third person singular inanimate pronoun.

(6) *Ahmet y-tdzı*
Ahmet 3SM-house
'Ahmet's house'

(7) *awiy a-mštaxi*
that 3SI-after
'after that'

What is consistent about the phrases in this SOV language? In the sentence, noun phrase, and 'prepositional' phrase, the head is always final but the specifier is initial. We can capture these generalizations of **head-final** and **specifier-initial** by simply changing the order of the head and complements in the X′ rule.[3] Therefore, for regular SOV languages like Abaza,[4] the basic phrase structure rules are:

(8) XP → Specifier X′
X′ → Complements X°

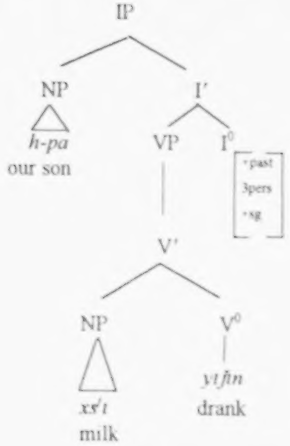
The trees generated by the rules in (8) for each of the Abaza examples will be given to show how the SOV version of the trees look. Sentence (5) is shown in (9), where the subject is in the initial specifier position (as in SVO languages) but the object is also before the verb in the complement position. (Note that we always read the word order from left to right beginning at the top left and going down and back up the tree.)

---

[3] This parameterization allowing us to change the order of the elements on the right side of the phrase structure rule parallels the distinction between Immediate Dominance and Linear Precedence in Generalized Phrase Structure Grammar (Gazdar, Klein, Pullum and Sag 1985).

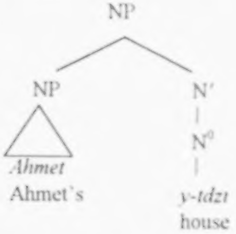
[4] I use 'regular' here to mean a language in which **all** phrases in the language follow the same basic phrase structure rules. In some languages, nominals have a slightly different order than the rest of the phrases do. We will see an example of this in the OVS language, Hixkaryana. Other splits in ordering, or languages where some or all phrases lack a strict ordering, are also possible.

(9)


IP
NP
I'
h-pa
our son
VP
I0
+past
3pers
+sg
V'
NP
V0
xs'ı
milk
yıfın
drank

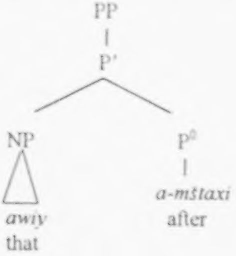
The possessor fills the specifier position in the noun phrase, which is initial:

(10)


NP
NP
N'
N0
Ahmet
Ahmet's
y-ıdzı
house

The head of the PP comes after the complement (11), so it is a postposition:

(11)


PP
P'
NP
P0
awıy
that
a-mštaxı
after

2. VOS Languages

Tzotzil, a Mayan language spoken in Mexico, provides data for a VOS language (Aissen 1987). (12) shows a sentence with a transitive verb, (13) shows a possessed noun phrase, and (14) gives a prepositional phrase.[5]

(12) *7i-s-pet lok'el 7antz ti t'ul-e.*
CP-A3-carry away woman the rabbit-CL
'The rabbit carried away the woman.'

(13) *s-tot li Xun-e*
A3-father the Xun-CL
'Xun's father'

(14) *ta bala*
with bullet
'with bullets'

All the phrases here are **head-initial** (like English) but **specifier-final**. The X-Bar phrase structure rules for VOS languages are:

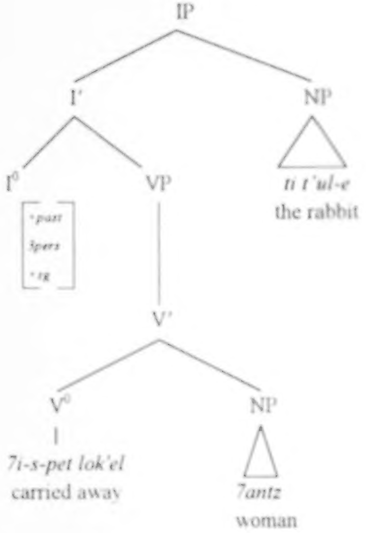
(15) XP → X′ Specifier
X′ → X^0 Complements

The tree for sentence (12) is given in (16), where the verb is first as the head of the VP, followed by the object in the complement position, with the subject last in the (final) specifier of IP position. VOS languages are just like SVO languages except for the ordering of the specifier.

---

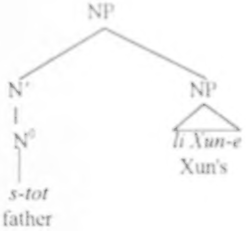
[5] The segment 7 is a glottal stop, whereas C' is a glottalized consonant. Abbreviations: CP = completive aspect; CL = clitic; A3 = third person absolutive.

(16)


IP
I'
NP
I⁰
VP
+past
3pers
+sg
ti t'ul-e
the rabbit
V'
V⁰
NP
7i-s-pet lok'el
carried away
7antz
woman

In the possessed noun phrase, the possessor fills the specifier position, so it is final:[6]

(17)

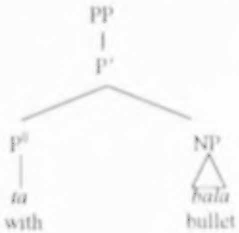

NP
N'
NP
N⁰
li Xun-e
Xun's
s-tot
father

---

[6] Note that within the possessor NP a determiner is present. In English, we have said that the determiner is also a specifier of the NP which alternates with the possessor. In Tzotzil and many other languages, possessors and determiners may co-occur and have different positions with respect to the noun. Since the determiner comes before the noun in Tzotzil, a head-initial and specifier-final language, it seems more likely that the determiner is a head. We will see how this works in Article 7 where the DP Hypothesis will be presented as one of the more recent additions to the theory.

Finally, the PP is head-initial as expected:

(18)



3. OVS Languages

(19)-(21) give examples of a simple transitive sentence, a possessed noun phrase, and a PP from one of the rare OVS languages, Hixkaryana, a Southern Guiana Carib language spoken in Northern Brazil (Derbyshire 1985).

(19) *Kuraha yonyhoryeno biryekomo.*
bow he-made-it boy
'The boy made a bow.'

(20) *Masarı hokru*
Masarı child-of
'Masarı's child'

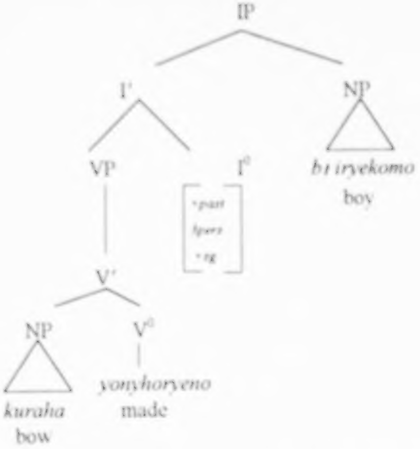
(21) *mokro yakoro*
that-one with
'with that fellow'

What is consistent about the three phrases here? The heads V, N, and P are all final. Looking at the position of the subject in (19) we see that the specifier is also final. The X-Bar rules that generate **head-final** and **specifier-final** trees are:

(22) XP → X' Specifier
X' → Complements X^0

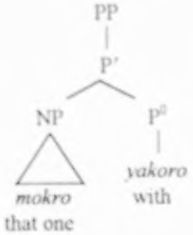
The tree for sentence (19) is shown in (23), where the object as the complement to the verb is the leftmost element, followed by the head verb and then the subject in the specifier of IP position. The only difference between OVS and SOV languages is the order of the specifier.

(23)


IP
I'
NP
VP
I°
+past
3pers
+sg
bɨ iryekomo
boy
V'
NP
V°
kuraha
bow
yonyhoryeno
made

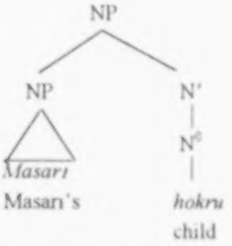
This simple change in ordering within the X-bar rules accounts for a good part of the typological expectations based on the word order. For example, head-initial languages, such as SVO and VOS languages, have prepositions while head-final languages have postpositions. (24) shows that Hixkaryana, as an OVS language, has postpositions as expected.

(24)


PP
P'
NP
P°
mokro
that one
yakoro
with

A closer look at the possessed noun phrase in (20) shows that the possessor is initial in Hixkaryana. This is contrary to expectation, since the subject (which is also a specifier position) is final. Hixkaryana can be analyzed as a head-final language that has the specifier in final position in all phrases except nominal phrases,[7] where the specifier is initial. The tree for (20) is thus:

(25)



The simple parameterization of the order of elements on the right side of the two basic phrase structure rules has taken us a long way in accounting for the various underlying word orders found in languages. SVO, SOV, VOS, and OVS languages can all be analyzed in this way. There are still two more word orders that do not fall out directly from a change of order within the X-Bar rules: VSO and OSV.

4. VSO and OSV Languages

There are only a few documented languages with OSV order, but a significant number of languages from various language families have dominant VSO word order. (26)-(28) give examples from Quiegolani Zapotec, an Otomanguean language spoken in Mexico (Regnier 1989, Black 1984), that has VSO word order.[8]

(26) *W-eey Benit mël*
C-take Benito fish
'Benito took a fish.'

(27) *W-nii men disa lo noo.*
C-speak 3RD language face 1EX
'She spoke Zapotec to me.'

---

[7] This division might be that all [-V] phrases, which would include PPs, have their specifiers initial. More data would be required to determine this.

[8] Abbreviations: C = completive aspect; 3RD = general third person pronoun; 1EX = first person exclusive pronoun.

(28) xnaa noo
mother 1EX
'my mother'

Urubú, of the Tupi family in Brazil (Derbyshire and Pullum 1981 from Kakumasu 1976), provides data for an OSV language (29)-(30).

(29) *Pako xuã u'u.*
banana João he-ate
'John ate bananas.'

(30) *Koi sepetu-pe jurukã Nexĩ mái muji-ta.*
tomorrow spit-on ribs Nexĩ mother she-will-roast
'Nexĩ's mother will roast the ribs on the spit tomorrow.'

In all of the phrases in Quiegolani Zapotec, the head is initial: the verb is first in (26) and (27); the preposition *lo* 'face' (used for 'to') comes before the pronoun *noo* 'me' in the prepositional phrase in (27); and the noun comes before the possessor in (28). In contrast, all of the phrases in Urubú have the head in final position: the verb is last in both (29) and (30); *sepetu-pe* 'spit-on' in (30) shows that the language has postpositions; and in the possessed noun phrase, *Nexĩ mái* 'Nexĩ's mother' (30), the noun is final. We can generalize that VSO languages are **head-initial** and OSV languages are **head-final**.

The problem with these two word orders for X-Bar Theory is that the subject intervenes between the verb and the object, something a specifier should not do. For many years, it was assumed that these languages were different from the others and had a flat structure rather than a configurational one. For example, (31), which follows, shows the flat VP structure (otherwise following GB) that Woolford (1991) posits for the VSO language, Jacaltec:[9]

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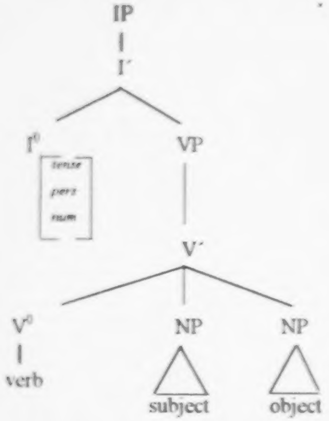
[9] The OSV structure would be a mirror image of (31).

(31)



However, research on VSO languages indicates that they really are similar to languages with other word orders in a number of ways (such as subcategorization for complements, subject-object asymmetries, and topicalization of a constituent allowed for a verb plus its object but not a verb plus its subject), leading to the proposal that they start out with the same configurational structure as other languages (Anderson and Chung 1977, Chung 1990, McCloskey 1991, etc.). From a theoretical point of view it is desirable to claim that all languages have the same basic D-structure, where the subject is in a specifier position and the sisters of the verb are all and only its complements. Two main proposals have been made to derive VSO word order from an underlying head-initial (SVO or VOS) D-structure. We need to understand more of the theory before addressing these proposals, however, so they will be presented in Article 7.

We have now seen how to account for the basic word order of a language using the X-Bar Theory of phrase structure. In languages having SVO, SOV, VOS, or OVS word order, the trees are simply generated in the proper order at D-structure from the phrase structure rules which have been parameterized for the language. In VSO and OSV languages, we must either use a flatter structure where the subject is a sister of the verb or posit some as yet undetermined movement. Of course, not all sentences in any language have the basic word order. In the next article, we begin to look at the constraints on movement as we consider question formation.

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Mainland southeast Asia:
A unique linguistic area

by Brian Migliazza*
SIL—Mainland Southeast Asia Group

A. Overview. Mainland Southeast Asia (MSEA) is a unique linguistic area in the world because of the large diversity of languages which have been intermingling from ancient times in this geographically small region.

This region has a unique linguistic richness and diversity. Except for the Indian subcontinent it is doubtful if any other similarly sized area in the world has as much diversity in types of languages, and in the amount and depth of contact among them. There are at least three major language families at a level comparable to Indo-European—Austroasiatic, Sino-Tibetan, and Austronesian. Sometimes the Miao-Yiao and Tai-Kadai language families are classified separately, giving a total of five language families. These languages are not confined to specific areas, but each language family is spread throughout the whole MSEA region providing a rich tapestry of interwoven languages. The history, culture, and intermixing of the peoples are very ancient as they have been continuously traveling throughout the area. Many have migrated into the region from the western Oceanic area, from the upper reaches of Mongolia, from the Himalayan mountains of eastern Tibet, from the kingdoms of southern India, and in recent times from western countries (mostly Portugal, France, Britain, and the USA).

The MSEA linguistic area runs from eastern India (Assam) to Vietnam in an east-west direction, and from southern China to peninsular Malaysia in a north-south direction. There are two major ancient cultural spheres for MSEA—Chinese and Indian (Edmondson and Solnit 1988). A third more recent cultural influence could also be added—that of the western countries. These cultural influences are sprinkled throughout the local languages. The writing systems reflect either a Chinese, Indian (via Mon and Khmer), or Western origin. The sources of borrowed vocabulary in the areas of religion, politics, and technical areas also reveal the effects of one of these cultural spheres. From a very early time, Chinese has been the dominant link for many languages. This is seen in the large number of Chinese words for many common items. The Indian influence is from a later era and came via a literate elite (Sanskrit, Pali) so that the borrowed words are in more specialized domains.

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* I would like to thank Christian Bauer for his helpful comments at an earlier stage of this work, and I am grateful to David Thomas for his valuable suggestions in the preparation of this article. Other works of interest to readers, not otherwise cited, but which deal with this topic are Benedict 1942, Diffloth 1977, Ferlus 1974, Gage 1991, Haudricourt 1961, Li Fang Kuei 1977, Riddle and Stahlke 1992, Schmidt 1906, and Smalley 1994.

This diversity can not only be seen in the languages themselves but also in the scripts. There are three basic types of scripts used in MSEA which are derived from Indic, Chinese, and Roman sources. Indic scripts derived from Sanskrit and Pali are the basis for the orthographies of Khmer, Laos, and Thai. India is also the source of the Mon scripts including Mon and Burmese. The only Chinese script in MSEA was the one that the Vietnamese used (called Nom) until the 18th century when the French colonial government adopted a Roman orthography that a Jesuit priest had devised. There are currently no Chinese based scripts in use in MSEA. Roman based scripts are used in Malaysia and Vietnam (as well as in the Oceanic SEA countries of Indonesia and the Philippines). A fourth category would be that of 'others', which includes such unique orthographies as the Fraser script, and also other various locally-devised scripts (i.e. Shan, some Hmong, etc.).

It is not difficult to see the sharing of linguistic features in MSEA given its long common history. The Tai-Kadai languages are said to be the linguistic bridge between the other languages back when all these speakers dispersed from the southern China coastlands (Edmondson and Solnit 1988:15). In this view, Tibeto-Burman, Chinese, Miao-Yao, Austronesian, and Mon-Khmer speakers were all originally in the same general area of south China near the coast where they were actively influencing each other. Tai-Kadai was the central language between Tibeto-Burman (which split off to the west), Chinese/ Miao-Yao (which split to the east), Austronesian (which left by boat for the various Oceanic islands), and Mon-Khmer (which went to the south). Tai-Kadai imparted the classifier system to all these languages and selectively retained various other diverse features from all these language families. As the linguistic bridge between these groups, Tai-Kadai both retained and imparted many linguistic elements which only remain in isolated fragments in the other language groups.

Consequently the MSEA is truly a unique linguistic area. It is a veritable melting pot of languages which provides an excellent 'laboratory' for studying the effects of language contact on language change and development. The generations upon generations of speakers who have crossed paths in their endless journeys through this Southeast Asian language market have created a blending of languages which makes it difficult to extract their original genetic sources. The MSEA area is a prime place for the study of typological classification versus genetic classification. Areal shifts have been so pervasive that it is difficult to know where the inherited language traits stop and the areal features begin. All areas of the grammar have been influenced including the phonology, lexicon, syntax, and perhaps even the semantic and discourse structures. Seemingly no part of the grammar has been immune to borrowing pressure. This has given rise to an areal phonology, areal syntax, areal semantics, and areal discourse which sometimes even overrides the genetic language family traits. Many languages have had waves upon waves of borrowing (in all areas of the grammar) from both major and minor languages. These borrowings have occurred repeatedly at various times over history, and in various directions. The resulting mix seen in today's languages makes it difficult (though not impossible) to separate out what is specific to that language.

The descriptive studies of languages in this region need to carefully divide the genetic features from the borrowed features. Shared innovations can be the result of inherited genetic traits or they can be the result of area shifts (the same shifts occurring independently in different language families). It is not unlikely that different languages could have had identical phonological innovations since the possible range of sound shifts is small so that duplicate innovations should be expected (David Thomas 1980).

B. Language Families.

Austroasiatic (Mon-Khmer). Austroasiatic languages extend from eastern India (Munda), through the Nicobar Islands to peninsular Malaysia, Vietnam, Laos, Cambodia, Thailand, and southern China. The Austroasiatic phylum is composed of the Munda and Mon-Khmer language families. Mon-Khmer includes such languages as Khasi in India, Mon in Burma, Khmer in Cambodia and Thailand, Bolyu in China, Vietnamese, and many minority languages throughout the area.

Sino-Tibetan (including Miao-Yao). Sino-Tibetan languages run from China in the north to India in the west (including Nepal and Bhutan), and then mostly through northern MSEA. Generally Sino-Tibetan is divided in two ways—Sinitic and Tibeto-Burman. Tibeto-Burman includes Bodo-

Garo, Kuki-Naga, and Karen. Kuki-Naga is comprised of Burmese-Lolo and Tibetan. Sometimes Mien-Yao is also included under Sino-Tibetan, but at this point it is still uncertain as to its exact status.

Austronesian. Austronesian languages range from the vast stretches of the Pacific Ocean to the Indian Ocean. They include the Oceanic islands (Polynesia and Melanesia), the Philippine islands, the Indonesian islands, and on over to the Island of Madagascar. Austronesian is subdivided into the following groups: Oceanic (Polynesian and Melanesian), Indonesian, Philippines, and Eastern Austronesian. Some of these Austronesian languages also appear in MSEA, such as Cham and Moken.

Tai-Kadai. Tai-Kadai languages extend mainly from southern China to Thailand, though they also appear in other MSEA countries such as Burma, Laos, and Vietnam. Tai-Kadai includes Kam-Sui and Be-Tai. Under Be-Tai eventually comes the most well known language in this family—Standard Thai, the national language of Thailand.

C. Typological Features. If the geographically small MSEA has actually had the large amount of shared social and cultural history that is claimed, so that the peoples of five major language families have been cross-fertilizing their languages for the past several millennia, then we should expect massive language contact. This cauldron of contact-induced change should have produced a potent brew of areal linguistic features. Emeneau's definition of linguistic area still stands as a good summary (Emeneau 1956:16 quoted in Masica 1976:4):

> ...an area which includes languages belonging to more than one family but sharing traits in common which are not found to belong to the other members of (at least) one of the families.

MSEA certainly fits this definition as there are many features (i.e., tone, numeral classifiers, etc.) which are shared throughout the area, crossing over several language family boundaries. These same features are also not found in some of the languages of these same families. Note that all of these features are probably found elsewhere in the world. There is a good chance that there are other languages that have the same or similar clusterings of features, but the claim is that MSEA is most likely the only large region in the world that shares this particular bundle of features.

Several sets of SEA typological features have been proposed by various authors. Pinnow (1960) listed areal features of SEA by contrast with features that he found in South Asia:

1. genitive postposed
2. head-modifier
3. noun-adjective-genitive
4. verb-object (object postverbal)
5. no extensive morphology
6. predominantly prefixes (loss of affixes generally)
7. tendency towards monosyllabicity
8. no dental/retroflex distinction
9. tendency to develop tonemes

Another list is given by Henderson (1965) in her seminal article on phonological features that are typologically characteristic of Southeast Asia as a linguistic area. She said that it would be preferable to speak of concentration areas where there is a confluence of features in specific geographical areas, since isoglosses of these features overrode accepted language family boundaries.

1. tone (presence or absence) correlated with: its use for grammatical purposes, initial/final consonants, vowel quality/quantity, and phonation type.

2. register (presence or absence) correlated with: initial consonants, phonation type, and pitch.

3. initial consonant patterns and their distribution with: aspiration, voice/voicelessness, retroflection, preglottalization/ nasalization, velar-uvular series of initial consonant distinctions, initial fricative/nasal/clustering patterns, and the grammatical use of any of these.

4. syllabification patterns correlated with: major/minor syllables (tonic and pre/post tonic), and consonant restrictions in the major/minor syllable.

5. vowel systems correlated with: incidence and distribution of back unrounded vowels, vowel length distinctions, diphthong patterns, initial/final consonants, tone and register, and the grammatical role of these vowel quality differences.

6. final consonant patterns and their distribution with: final palatals incidence, use of voice distinction finally, final clusters, and the grammatical use of final consonants.

A more recent typological checklist is presented by Suriya (1988) in which she adapts and expands on Budge's (1980) list of grammatical features. Each of these items is either unique in itself or is treated in some unique way by the languages in the Mainland Southeast Asian linguistic area.

Together these features form a package and this package is only found in the MSEA.

1. numeral classifiers
2. sentence final particles
3. formation of ordinal numbers from cardinal numbers
4. comparative construction: use of a verb meaning *to exceed* or *to pass* as a comparative marker
5. continuous aspect marker: use of a verb meaning *reside*, *stay*, or *exist* as a progressive marker
6. V not V questions (tag questions)
7. nouns used as prepositions
8. 'suffer-type passive' construction in which there is some adverse effect on the subject
9. compound Noun/Verb
10. verb serialization
11. tonogenesis in compensation for a change somewhere in the syllable (initial or final consonant, or vowel)

Numeral classifiers are nouns which classify some feature of the head noun that they modify. Sentence final particles express such concepts as attitude, mood, speech level, qualification of the verb, or various features of the speaker (sex, age, etc.). The ordinal numbers (first, second, etc.) are formed by adding some word or particle to the cardinal number (one, two, three, etc.)—such as Thai which uses *thii3*. The comparative construction in Thai uses *kwaa2* (which is normally a verb meaning *to exceed*) to express the idea of *more than*. The continuous aspect marker in Thai is *juu2*, meaning *exist*. In English, *inside* is an example of a word that can be used both as a noun and as a preposition. Thai also uses some nouns as prepositions. The word *khɔɔng5* can be used as a noun, meaning *thing*, or as a preposition *of* (at least in the sense of what passes for a preposition in other languages such as English). The 'suffer-type passive' construction in Thai uses *thuuk2* to describe an event in which there is an adverse effect on the subject. The compound noun/verb uses N + N, V + V, Adj + Adj, or Adv + Adv to form a compound. In Thai *paa2 + dong forest + forest'* is a compound N + N used to describe a specific type of forest. Actually this particular construction is somewhat unique in that the compound is made up of a Central Thai word plus an Issan (Lao) word. Verb serialization uses verbs as coverbs (where they modify the main verb), prepositions, and in serial constructions (two or more full verbs used together). One example of this in Thai is the verb *hay3* which has the regular verbal meaning of *give* but can also be used in other constructions where it seems to approximate more the meaning of the preposition *to*. Tonogenesis has been widely described for many languages as deriving from various parts of the syllabic structure.

Edmondson and Solnit (1988:14) add to this list the typological features of:

1. monosyllabicity
2. glottalized consonants
3. isolating/analytic syntax
4. four-syllable elaborate expressions.

One of the more recent lists is that given by Suriya (1990:89-95. Though this is for the Tai languages it seems generally applicable, with some modifications, to the Southeast Asian region.

1. monosyllabicity
2. tonality
3. no morphology
4. simple syntax
5. verb serialization
6. numeral classifiers
7. final particles

All these lists of features, if not completely true for each language, nevertheless serve as a means of identifying the general tendency of languages in SEA to behave in this way. Each feature can act as a diagnostic for how any specific language fits within the general framework of SEA areal characteristic. For example, with syllabicity we can also describe the acceptable limits of consonant (initials, finals) and vowel patterning, as well as clusters. Instead of seeing each feature as a binary on/off switch (the feature is either all there or totally absent), we should view them as continuums with degrees of acceptable variation. For the feature of syllabicity, therefore, we can describe the languages of MSEA as varying from disyllabic (Tibeto-Burman, Austronesian) through sesquisyllabic (one-and-a-half, Mon-Khmer) to monosyllabic (Tai).

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Reviews of Books

An Introduction to Language and Society. By MARTIN MONTGOMERY. 2nd ed. New York: Routledge. 1995. 301 pp. Paper $17.95.

Reviewed by T. G. BERGMAN
SIL—Africa Group

This well-written, easy to understand book was a disappointment to me as a language surveyor because I had expected from the title that it would include a substantial discussion of what some would call the sociolinguistics of society. Instead it deals almost exclusively in micro-sociolinguistics having to do with speech acts at an individual level more than at the societal level—topics such as language development of children, the anti-language of groups antagonistic to the prevailing society, gender and language, British black English, register, and other non-macro topics. Montgomery introduces these topics very nicely with clarity and writing that keeps the reader's interest, making it possible to know what is being discussed and explained. It is just that this title implies a far greater reach than is encompassed in this volume. It is a disappointment because it is precisely the topics that he omitted that are of most interest for language surveys. There is almost no mention of bilingualism, semi-lingualism, language planning, language vitality and endangerment factors, or the boundaries between dialect and language. Further, the discussion of language itself is severely limited. Most of the illustrations and analysis are limited to British language and society with a few things from American. There is almost nothing discussed concerning other languages and societies.

Having said that, what Montgomery does he does well. The book is highly readable and illustrated by well chosen examples. At the end of each chapter he gives an excellent thumbnail sketch of the seminal literature and includes some excellent homework suggestions for fieldwork projects. Instructors can find a wealth of good ideas here.

The chapter on registers or stylistic variation is excellent. He explains the difference between ways of writing and speaking by dividing register into field, tenor, and mode. The nuances he illustrates give very practical insight. This insight could perhaps help a translator put the speech he hears onto the written page and have it give the precise impact of the source even though the target language may never have been expressed in a written form previously.

On p. 69, Montgomery does make a statement that is of interest to surveyors. He makes the following distinction between ACCENT and DIALECT. ACCENT is a term

> ...exclusively reserved for whole patterns of pronunciation typical of a particular region or social group. The term *dialect* covers a broader range of differences, including not only matters of pronunciation, but also distinctions in vocabulary and sentence structure.

This is an instructive definition which he makes convincing through references and examples of which field linguists and surveyors could take note. There is a tendency to identify anything as a dialect that has significant distinguishable differences in the minds of people who are interrogated. As a result an overly large number of speech forms are perhaps labeled as dialects when in fact they may more properly be simply accents. The definition above which requires grammar and vocabulary differences in addition, gives a handle with which to distinguish the two in practical terms.

Chapter 11 is an interesting introduction to the debate between 'universalist' and 'relativist' philosophies:

> ...do all human languages represent the world in the same way; or do different languages (by virtue of their different vocabularies and structures) provide different ways of experiencing and understanding the world.

For example, he says, since Russian has twelve basic color terms and English has eleven, the former marking two kinds of blue, does that mean a Russian speaker has a deeper capacity for understanding 'blueness'? Or another example from Whorf: Hopi grammar uses verb 'tenses' to distinguish objective and subjective rather than time as English does. Does it therefore follow that Hopis have a different understanding of time? Montgomery says, 'Any claim ... that we can experience *only* that for which our native language provides explicit categories and distinctions' is difficult to prove. Language 'does not totally constrain our ways of seeing and experiencing'. However, he does claim

> ... that language plays an active and crucial—if qualified—role in shaping (though not completely determining) the processes of representation, by 'pointing us toward different types of observation' and 'predisposing certain choices of interpretation'.

Although convincing in his representation of the universalist and relativist positions, one example regarding military terms leaves me unconvinced. He claims,

> that there is a set of pseudo-technical expressions such as 'delivery system', 'circular error probable', 'collateral damage' … that seem to have the status of specialized terms developed to serve rational analysis, calculation and debate. On closer inspection they prove instead to be obscurantist and euphemistic, creating an illusory sense of precision.

He further says,

> Generally such expressions have the effect of anaesthetizing one to the full reality being referred to.

He makes the above claims, but many times the terms are useful and not at all euphemistic or imprecise. In fact they were invented and are used exactly because not to use them leaves discussion and analysis imprecise and obscure. Circular error probable, for example, is a variable with precise meaning, used to quantify the accuracy with which bombs or other munitions strike the aim point. Its purpose is for calculation and rational analysis and it is not at all euphemistic or deceptive.

With the exception of the above topic, the other topics covered were well explained and a pleasure to read. The fieldwork projects at the end of each chapter are particularly well done.

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Foundational issues in artificial intelligence and cognitive science: Impasse and solution. By MARK H. BICKHARD and LOREN TERVEEN.. Amsterdam: Elsevier Science. 1995. Pp. 384. $141.25.

Reviewed by MICHAEL BOUTIN
SIL—Malaysia Branch

While most SIL field linguists are simply concerned with empirical questions of grammatical analysis and not philosophical reflections on language, from time to time it is useful to examine our foundations. Despite the title of the book under review, the primary issue discussed in this book is of fundamental concern to mainstream linguistics and not just academic researchers involved in artificial intelligence (AI) and cognitive science (CS).

The focus of Bickhard and Terveen's (B&T) book is on the nature of representation within the fields of AI and CS. The central point of their book is that there is a major conceptual flaw in contemporary approaches to AI and CS. This flaw has to do with the nature of representation, specifically the presupposition that all representation has the nature of encodings. B&T refer to this presupposition as ENCODINGISM and they claim that encodingism is the source of the current impasse in both AI and CS research. According to them, this impasse is so damaging that it makes the ultimate aspirations of AI and CS impossible, yet it is only partially perceived.

The focus of B&T's critique is the assumption that representation is constituted as some form of ENCODING. The key defining characteristic of encodingism is the assumption that there are correspondences between encodings and things in the world. That is, things in the world are represented by these correspond-ences. B&T explore the fatal flaws of this premise in chapters 1-6 and discuss movements away from encodingism within AI and CS in chapters 9-13.

B&T do not propose an unsolvable impasse. In fact, chapters 7-8 present a sketch of an alternative to the encodingism impasse which they call interactivism. A fundamental distinction between encodingism and interactivism is that in the former encodings are assumed to represent something, whereas in the latter representation emerges out of nonrepresentational phenomena in a form other than encodings, thus interactivism claims that encodings cannot be the foundational form of representation. Chapters 14-15 provide arguments for how interactivism avoids some of the flaws of encodingism and how it forms a framework for understanding representation.

B&T criticize semantic theories which assume that cognitive processes can be modeled in terms of the manipulation of encoded symbols which form a level of representation between language and the world (e.g. Foder 1975). However, since arguments against this view of semantics are replete in the linguistic literature, the strength of B&T's book does not lie in such criticisms but in the discussion of problems encountered when trying to represent the relationship between language and the world.

Since modern linguistics, particularly field linguistics, is independent of 'the mother of all sciences' (i.e. philosophy) why should OWLs (ordinary working linguists) be interested in the issues summarized above? First, philosophy continues to shape certain aspects of linguistic theory—especially the philosophy of language. Second, formal linguistics and cognitive science share some basic foundations in the form of Turing machine theory and Tarskian model theoretic semantics. In fact, formal linguistics is based on the assumption that natural languages can be usefully viewed as sets of structured strings which are suited to mathematical analysis and formal representation. Third, since representation permeates linguistics and is crucial for descriptive, theoretical, and computational linguistic enterprise, it is important to grapple with fundamental issues of representation.

The book is well edited and proofread. There are only a couple of typos and missing references, but nothing that is really distracting. Unfortunately, the book has a steep price at $141.25. The font size is larger than that found in most linguistic books so it is easy to read even by kerosene lantern. A reduction in font size and line spacing accompanied by a corresponding reduction in price would make the book more attractive but, nevertheless, it is certainly worth a look if you are interested in semantics.

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Voice and inversion. By T. GIVÓN, ed. *Typological studies in language 28*. Amsterdam/Philadelphia: John Benjamins Publishing Company. 1994. 410 pp.

Reviewed by HENK COURTZ
SIL—Suriname Branch

The articles in this 28th volume of *Typological studies in language* are centered around a relatively new subject in linguistics: inverse voice, a linguistic phenomenon that is partly similar to active voice and partly to passive voice.

In the introductory article by Givón, inverse voice and three other voices that are to be distinguished from it—active-direct, passive, and antipassive—are PRAGMATICALLY or FUNCTIONALLY (i.e. independent of any single language or language structure) defined (p. 8-9): (1) active-direct is the voice construction in which the agent is more topical than the patient but the patient retains considerable topicality, (2) inverse is the voice construction in which the patient is more topical than the agent but the agent retains considerable topicality, (3) passive is the voice construction in which the patient is more topical than the agent and the agent is extremely non- topical, and (4) antipassive is the voice construction in which the agent is more topical than the patient but the patient is extremely non-topical.

VOICE	RELATIVE TOPICALITY
active-direct	agent more than patient
inverse	agent less than patient
passive	agent much less than patient
antipassive	agent much more than patient

Because in these definitions relative topicality of agent and patient is the criterion to distinguish the four voices from each other, Givón mentions two tools for measuring topicality (THEMATIC IMPORTANCE): (1) assuming that topicality correlates with anaphoric accessibility, one way to get information about topicality is to find out how many clauses separate the referent's present occurrence from its last occurrence in the preceding text, and (2) assuming that topicality correlates with cataphoric persistency, topicality is measured by counting the number of times a referent recurs in the next ten clauses.

Two other ways to find evidence for a certain voice are to look for: (1) how often does each voice occur in the same length of text (active-direct is expected to occur the most, next inverse, then passive, and antipassive is expected to occur the least), and (2) how often does a voice have the agent or patient absent (both active-direct and antipassive have topical agents, but the patient seems to be absent many times more often in antipassive constructions than in active-direct ones; both inverse and passive have topical patients, but the agent seems to be absent many times more often in passive constructions than in inverse ones).

The papers that follow the introduction all use the statistical research tools mentioned in the introduction, and they are divided into articles dealing with morphological inverses and articles dealing with word-order inverses.

First among the morphological papers, Chad Thompson's paper suggests some criteria to distinguish between inverse and passive. After that, morphological inverses are discussed in the following languages: Kutenai (language isolate by Matthew S. Dryer), Northwest Sahaptin (Sahaptian by Noel Rude), Squamish (Salish by Peter Jacobs), Bella Coola (Salish by Linda B. Forrest), Spanish (Indo-European by Raquel Hidalgo) and Carib (Cariban by Spike Gildea).

Word-order inverses are discussed in: Modern Greek (Indo-European by Katy Roland), Korean (Altaic by Inhee Lee Kwak), Maasai (Nilotic by Doris Payne, Mitsuyo Hamaya and Peter Jacobs), Cebuano (Philippine by Thomas E. Payne) and Karao (Philippine by Sherri Brainard).

The book does not combine the findings of the different authors in a single final statement. In the introduction Givón already states that it is 'somewhat premature' to come up with an exhaustive cross-linguistic typology of inverse-voice clauses. By defining the inverse voice functionally in a language-independent and structure-independent fashion, the book wants to 'open the door for the search, in any language, of clause-types that perform this function'.

Indeed, in this book some inverses are found in languages where one may not expect them. For example, in the article dealing with the Carib language in Surinam, a construction that was described (and perhaps rightly so) as a passive construction in earlier work, is now presented as a (functional) inverse construction because functional topicality research shows that the agent is less often absent than expected, and thus more in accordance with the functional definition of inverse than that of passive. Exactly on the same basis (i.e. on the basis that the agent in a passive construction is more often present than expected), in Spanish a passive construction is now put forward as an inverse-voice construction. In the article dealing with Modern Greek, a language that has been described as having only active and passive voice (marked in verbal morphology), now seems to have a (functional) inverse (marked in word order). Another example is Korean which has many suffixes regulating grammatical relations between subject and object, etc., but no suffixes marking inverse voice; the previously unknown inverse voice that is discovered in this book is the word order OSV, an inversion of the regular SOV order.

In general, a functionalist approach to language contains the danger of introducing 'universal' categories into a certain language that do not fit the general structure of that particular language. Topicality in itself is not easy to measure, and in this book it is only measured indirectly. Yet, topicality has in this book become the main criterion to find inverses, thus finding inverse voice not only in morphological systems (where inverse voice started its career), but also in word order variations. Word order variations are well-known devices to modify topicality or emphasis patterns, so possibly some or all of the word order inverses may turn out to be just that —variations of topicality or emphasis instead of markers of inverse voices.

Apart from the danger of including too many linguistic constructions in the inverse research, there is the danger that inverse voices may be overlooked in some languages because they show not enough agreement with the universal topicality definition of inverse, though they might be in agreement with a structural definition of inverse.

Another matter that complicates topicality research but is not clearly discussed in this book is related to a fundamental difference between speech act participants (first and second person) and nonspeech act participants (third person). Once the speakers of a dialogue are known, the referents of first person and second person morphemes are readily identified each time they occur (there is only one 'I' and only one 'you'), but often a third person morpheme's referent may not be readily identifiable (there may be a multitude of possible referents around). When a verbal form has third person marking and is also combined with a noun phrase providing extra identification possibilities (as happens in many languages), should that extra noun phrase in the same clause not in some way be included or accounted for in topicality research? Just the presence of a single noun phrase influences anaphoric and cataphoric possibilities. The suggested method in this book only counts same referents in previous clauses and following clauses and does not discuss why same referents in the same clause are not counted.

Inverse research may be better served with a structural definition than the functional definition that is used in this book. The functional approach in this book seems to not only clarify inverse research but also obscure it. It is the same obscurity that is caused in, e.g., looking for orders instead of looking for imperatives, a search that obscures the clear boundary many languages have between imperative mood and declarative or interrogative mood. It is the same obscurity that is caused by looking for agents and patients instead of looking for subject and object, a confusion that is also noticeable in this book, where, in a language that has and continues to have verb-subject agreement (Carib), one construction now shows agreement between object and verb because that construction, a structural passive (that has a patient as subject), is now being reanalyzed as an inverse (that has the same patient as object—p. 219).

Still, this book is very useful as a general introduction to the fairly new subject of inverse and its manifestations in a number of languages. Linguists that are interested in one or more of the languages that are discussed in this book will want to read the articles on 'their' language(s). Linguists working in other languages may want to use the research methods presented in this book to discover an inverse or inverse-like phenomena in the language with which they are dealing.

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Discourse, consciousness, and time: The flow and displacement of conscious experience in speaking and writing. By Wallace Chafe. Chicago: The University of Chicago Press. 1994. Pp. 340. Cloth $75.00, paper $24.95.

Reviewed by Karl J. Franklin
SIL—Vice President for Academic Affairs, Dallas

The picture on Chafe's book is symbolic: Two men dressed from an earlier century are standing on a rock outcrop above a canyon with a stream below and wooded hills beyond. They are in conscious discourse, out of context spatially and temporally, yet the scenery has not changed perceptibly over the generations. The picture is a reminder of Chafe's contention that 'The twentieth century has focused its attention on matters quite remote from relationships between language, consciousness, and time'. He believes that we must 'restore conscious experience to the central role it enjoyed in the human sciences a hundred years ago' (4).

Given this perspective, Chafe's book deals with two main aspects of discourse—its flow on the one hand and its displacement on the other. Each is treated in a series of chapters, but prior to this Chafe sets the background to his study by reviewing the nature of understanding which encompasses language, memory, and the imagination. Understanding deals with observation (data) and schemata (theories). He notes that much of '...contemporary linguistics has focused on the construction of elaborate theories invented for the understanding of minuscule and questionable observations' (11). By dividing observations into Public versus Private (also objective and subjective, but he is not claiming that one is more real or scientific than the other), he attempts to show that any study of discourse is equally dependent on introspective insights.

Public and private observations can be manipulated or they may be natural. Examples of the former are experimentation and elicitation or, in the case of private observations, semantic judgments—ones about how to construct language. Natural observations, on the other hand, are public in the case of ethnography and corpus based research, or day-dreaming and literary when they are private.

As a further preliminary, Chafe discusses the nature of consciousness, including the philosophical question of. how consciousness can observe itself. In his terms it has a focus, it is embedded in a surrounding area of peripheral consciousness, and it is dynamic. In Pike's (1982) framework consciousness could be described as a particle, part of a field, or constituting a wave. There are, according to Chafe, five properties of consciousness: its source or experience, the context which allows remembering or imagining, whether it is fact or fiction, if it is interesting or reinforcing, and, finally, if it is verbal or nonverbal. Chafe is also vitally interested in the difference between speaking and writing as conditions under which language is produced, as well as thinking as a third mode. He discusses the differences of each and contrasts the modes and attitudes associated with speaking and writing.

What does Chafe consider as the FLOW of discourse? First and foremost, it includes intonation units, perhaps a 'biological necessity' (57), with features of fundamental frequency, duration, intensity, vocalization, and voice quality. The function of the intonation unit is to verbalize the information so it is not surprising that the unit often looks most like a clause. Information in the unit may be active, semiactive, or inactive—all representing states in the mind of the speaker. There is a certain COST in providing the information—for example in linguistic terms the speaker can choose between full NPs in the unit or pronominalizations.

The grammatical subject is the starting point in a discourse with all other information added to it. Chafe speaks of identifiability and definiteness where information in the discourse is shared, verbalized, or contextually salient. Because subjects are nearly always identifiable they function most often as the starting point. In his analysis the introductory unit is limited to one new idea except for certain quantifiers, numerals, or intensifiers.

Students who have studied Longacre (1983) will see many similarities with Chafe, including the idea of discourse topics. These are chunks larger than intonation units (i.e. clauses) and have topics which include one referent with a point of view. Chafe discusses the universal versus culturally-determined properties of a discourse schema which includes orientation, complication, climax, denouement, and coda. Again, compare with Longacre (1983).

Chafe applies his schema on discourse to Seneca, a language which he knows well. He finds that words in Seneca contain more information than in English so that the intonation unit in Seneca is about half the length of English. In Seneca the pronouns function as core participants and distinguish the agent and patient rather than the subject or non-subject, as in English. There is also no subjecthood as a starting point, although the one new idea constraint holds in Seneca. There the definite article identifies but can also nominalize events and states. In Seneca the word order depends on news-worthiness of the referent and, if necessary, it precedes the verb. Chafe also makes some observations on Seneca music and relates it to his observations on discourse.

Chapter 13 appears to be an academic aside, an overview on 'alternative approaches to information flow', and is based on observations from the works of Firbas (1986), Halliday (1985), Clark (1992), Prince (1981), and Givón (1984, 1990).

The third and final part of the book discusses what Chafe calls displacement. It begins by examining the nature of immediate and displaced consciousness in conversational language. To account for this Chafe distinguishes between what he calls introverted ideas—that is those which are remembered and imagined, and extroverted ideas—those which are perceived, acted upon, and evaluated in the consciousness.

Chafe also contrasts overt speech with overt thought, although both have 'referred-to' speech, indirect speech, and direct speech. Inner speech or thought has dimensions which are not parallel to overt speech such as pseudo-indirect thought, thought, and the possibility of pretending. Chafe discusses how writing—particularly fiction—fosters creativity and how tense is used to '...establish displaced immediacy' (236). He illustrates his points by examining the fiction of authors such as a Stephen Crane, Eudora Welty, and Nathaniel Hawthorne, and the non-fiction of personal letters, autobiography, and expository writing. Chafe's interest in displacement and flow also leads him to comment on written paragraphs and discourse topics and their relationship. His conclusion is '...that paragraphs constitute a variable rather than a cognitively determined resource, one that can be manipulated by writers for diverse effects' (300).

We conclude by noting that Chafe has taken introspection seriously and that his insights on discourse are therefore quite different from linguists who stick mainly to the overt manifestations of speech. He is not interested in the manipulation of abstract constituent structures, which is often the main concern of syntax today. Applying his work on discourse can also provide a basis to stimulate translators to take advantage of the rich imaginative consciousness that native speakers bring to the translation table.

The book can serve linguistic courses or workshops as a supplemental reading on discourse. Chafe's proposed model is, of course, incomplete in that it includes dimensions of discourse that lie behind overt structure. It is not intended to outline discourse mechanics for the reader, but it is a valuable and stimulating contribution on most aspects of discourse. You will not be disappointed if you read it.

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Research-doctorate programs in the United States: Continuity and change. By MARVIN L. GOLDBERGER, BRENDAN A. MAHER, and PAMELA EBERT FLATTAU, eds. Washington, DC: National Academy Press. 1995. 740 pp. Hardbound $72.00, paper $59.95.

Reviewed by THOMAS N. HEADLAND, *Texas SIL* and
ALEXANDER H. BOLYANATZ, *Wheaton College*

This mammoth book, released in September 1995, is the most comprehensive assessment available of doctoral programs in the USA. The study, conducted by the National Research Council, a part of the National Academy of Sciences, supersedes the last NRC ranking published in 1982. The volume is meant to be a guide to students trying to decide where to attend graduate school, to those who finance research projects, and to faculty and administrators trying to assess academic departments' effectiveness. It covers 3,634 academic programs at 274 institutions (105 private and 169 public) in 41 fields of study (including linguistics and anthropology). About 35,000 people receive doctoral degrees in the United States each year from these schools.

What is the difference between this NRC ranking analysis and the one provided annually by *US News and World Report*? Quite a bit. The USN&WR ranking is based heavily on tuition and value for money and it ranks only undergraduate programs, not graduate programs. The NRC study looks strictly at reputation, publications, length of time to graduate, and other academic considerations. University professionals may look with disdain at the USN&WR ranking as not purely academic. Consumers with limited money, of course, may have a different opinion. In any case, the USN&WR ranking should also be considered. It has variables that the NRC study does not, such as rankings of undergraduate schools and of small Christian colleges.

People considering where to apply to graduate school and who realize that 'A Ph.D. is not enough' (the title of a highly acclaimed 1993 book by Peter Feibelman) to succeed in academia, should refer to the NRC study before making a final decision between two or more schools. Many academic counselors consider the NRC study as a basic tool to use for making an intelligent decision about where to apply for graduate training.

Information packed into this volume includes the number of undergraduate and graduate students in each university and in each department; percentage that are female; number of books and serials in each library;

percentage of faculty in a department that published, were cited, and that received grants between 1988-1992; etc. One important measurement for most readers is usually where departments are ranked in each discipline. For example, the top ten departments in linguistics (out of 41 linguistic departments) are (asterisks indicate a tie): MIT, Stanford, UCLA, Mass-Amherst, Pennsylvania, Chicago,* Berkeley,* Ohio State, Cornell, UC-Santa Cruz, Arizona,* and Connecticut.* In anthropology the top ten (out of 69 departments) are Michigan,* Chicago,* Berkeley, Harvard, Arizona, Pennsylvania, Stanford, Yale, UCLA, UC-San Diego, Illinois,* and Johns Hopkins.*

How important is it to choose a high-ranked department? That depends on one's career goals. If a student's goal is to gain a tenured faculty position in a major research university, then the connections and reputation of a top department are much more critical than if one plans to spend her career living and applying her doctoral education in the developing world. While in general we might not encourage a student or SIL member to apply to a graduate department in, say, the bottom 15 percent in the ranking, it would be a bad mistake to put emphasis on rank alone. What a student wants to study and who is in a department that covers his area of interest is, many would say, more important than going by rank as a major criterion. That means spending a lot of time researching who does what where and finding out from others how their work is respected and what kind of mentors they are. Ranking guides are a place to start, but they cannot replace personal contacts—and one has to be brazen and work hard to develop those.

How long does it take to get a doctorate from an American university today? The NRC answers that question for every graduate department in every university. In linguistics the overall average number of years in all graduate schools is 10.6, and in anthropology 11.5 years—beyond the bachelor's degree. (SIL members in doctoral programs consistently beat these averages by 20-30 percent.) For those planning to spend that many years in an institution, it may be worth spending a few hours studying this book before starting. It is not the only factor to consider in making a decision but it should be one of them. SIL directors and academic coordinators should be familiar with the book if they are to advise members considering graduate programs. The Texas SIL school has a copy of the book, and is willing to answer short questions from SIL members overseas.

The NRC book won't answer every question. Those considering graduate study in anthropology should also refer to the *AAA Guide to Departments*, a 600-page book revised and republished yearly by the American

Anthropological Association. It sells for $50. The *Guide* lists every department in the U.S. and Canada that has an anthropology emphasis, including such details as each professor's name, highest degree, and specialties; and it describes each department's emphases, special programs, student financial support available, and requirements for a Master's degree or Ph.D. None of these details are in the NRC book. For those considering graduate work in linguistics, the Linguistic Society of America publishes yearly a *Directory of Programs in Linguistics in the United States and Canada* ($20, about 180 pages), which should be consulted. While it does not cover the depth of detail found in the AAA Guide, it does list names of professors and department emphases. This book may be purchased from National Research Council, phone 800/624-6242 or 202/334-3313; fax 202/334-2451; or via America Online or Internet at http://www.nas.edu.

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The Basque language: A practical introduction. By ALAN R. KING.
Reno: University of Nevada Press. 1994. 480 pp. Cloth $60.00

Reviewed by NEILE A. KIRK*
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An obvious first question for many people upon hearing of this book could be: Why learn Basque? King writes in his preface:

> The users of this book can be classified according to their purpose in studying Basque: those attracted by a scholarly interest and those wishing to learn Basque for the same reasons many people (other than scholars) learn any language: for travel, to expand their cultural horizons, to facilitate communication with family or friends, to learn about their heritage, or simply as a fascinating hobby (p. xiii).

The number of those attracted to the Basque language by a scholarly interest has perhaps grown in recent years as a result of the controversies about its possible linguistic affinities. Let us first of all take a look at what all the fuss has been about. German *Baum* 'tree' was supposed by the Georgian linguist Marr to be related to Basque *makila* 'stick' (Marr 1923: 52-53). While few would accept this today, there could hardly be an objection on semantic grounds—after all, the English cognate of *Baum* is *beam*. This was a part of Marr's Japhetic theory in which Basque and some long-extinct languages purportedly formed a substrate whose influence on Indo-European was supposed to have been enormous.

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* I would like to thank members of the Parkville Circle for useful discussions and advice on the final version of this manuscript.

We even find the Japhetic theory referred to in a 1951 German etymological dictionary in such entries as:

> **Beere** f. 'berry': OHG *beri* n., MHG *ber* n. (NHG gender from MHG plural.); OE *berie* (ENG. *berry*), ON *ber*, GOTH. *-basi* (cf. UD. *bes*). Perh. of Caucasian origin or from 'Japhetic' (pre-IEUR.) stratum in GMC. (Walshe 1951:17)

and

> **Erbse** f. 'pea': OHG *araweiʒ* , MHG *erwiʒ* ON *ertr*, cf. LAT. *ervum* 'kind of pulse', GK. *orobos, erebinthos*, all perh. from a Caucasian source or from 'Japhetic' (pre-IEUR.) stratum in GMC. (ibid:48)

This dictionary also contains the entry:

> **Kaninchen** n. 'rabbit': MLG *koníneken*: OFR. *connin*: LAT. *cuniculus*, prob. of Iberian origin (rabbis came from Spain), cf. Basque *unchi*. From LAT. *cuniculus* also MHG *küneclin* (NHG BAV.*kiniglhàs*), which was interpreted as 'little king'(!) and so rendered into CZECH as *kralik* (*král* 'king'), whence POL., RUS. *krolik*. (ibid:113-114)

By the way, the standard spelling of the modern Basque word for 'rabbit' is actually *untxi* (Aulestia 1989:517).

Čirikba (1985:101) attributes Spanish *zorro* 'fox'—a famous word indeed thanks to American television—to Basque *axeri* 'fox', which he relates to North Caucasian words, as he does with a great deal of the Basque lexicon.

Larry Trask, who along with Gorka Aulestia read the first manuscript of this textbook (p. xii), has presented a very useful overview on the real situation in the search for relatives of Basque (Trask:1994-5) and Sidwell (1995-6) discusses the controversial theory of the role of Basque in prehistoric Europe which was presented by Theo Vennemann at the XIIth ICHL conference recently.

This textbook is comprised of five main sections: 'Study Units', 'Elementary Reader', 'Reference Section', 'Vocabularies', and 'Indexes'. Already in the 'Introductory Unit' we learn some practical phrases like: *Epa!* Hi!, *Egun on* Good morning, *Zer moduz?* How are you doing?, and *Ongi, eta zu?* Fine, and you? (p. 4). The forty Study Units are very practical in their coverage of spoken Basque in a great variety of situations which one would need to deal with in the Basque Country. The units feature exercises for which there is a key when appropriate, thus making this book readily useable without a teacher. By Unit 28 the student is ready to do Exercise 242:

> Think of all the things that can be wrong with your food, drink, and surroundings in a restaurant. For example, the food can be too cold (*hotzegi*), the meat can be too rare (*gordinegi*), the table can be too small (*txikiegi*), and the check can be too much (*gehiegi*)! Make up a conversation in a restaurant in which you complain to the waitress about everything that's wrong (p. 232).

A Basque composition topic at the end of the same unit is:

> In your opinion, who ought to pay for people to learn Basque in the Basque Country: the Spanish government (*Gobernu Espainola*) and the French government (*Gobernu Frantsesa*), the newly formed Basque government (*Euskal Gobernua* or, officially, *Eusko Jaurlaritza*), independent grassroots organizations in favor of the Basque language (*euskararen aldeko herri erakundeak*), or the students? Discuss the reasons for your opinion (p. 236).

The Reference Section will be of particular interest to linguists as one can quickly find grammatical topics such as 'The Case system', 'Postpositions' and 'Important word-forming suffixes'. In 'Some world lists' King gives 'Principal time adverbs' such as *aspaldian* (lately) and *gaur* (today), 'Days of the week; months; dates', 'Numbers' both cardinal from *bat* (1) to *mila* (1,000) and ordinal such as *lehen* (first), *hamargarren* (tenth) and *milagarren* (thousandth), and 'Geography' including *Euskal Herria* or *Euskadi* (the Basque Country), *Espainia* (Spain), *Estatu Batuak* (the United States), *Ipar Amerika* (North America).

King's guide to pronunciation is commendably clear, for example:

> **G** as in English *give, go.*
> **J** like English *y* as in *yes, yacht* (varies in the dialects).
> **N** is generally as in English, but is sounded **m** when followed by **P**, **B**, or **M**.
> **Ñ** is similar to English *ny* as in *canyon.*
> A single **R** between vowels (e.g. in *bero*) represents a weak tongue-flap, similar to the American pronunciation of *tt* in *Betty* or the British pronunciation

> of *rr* in berry. In other positions Basque **R** is usually rolled, including when written double (e.g. in **berri**).
> **S** is a sound halfway between *s* in English *so* and *sh* in English *show*.
> **X** is like *sh* in English *show*.
> **Z** is roughly like *s* in English *so* (p. 341).

and

> There are four palatal consonant sounds in Basque. They are written **Ñ**, **LL**, **TT**, **DD**, and pronounced roughly *ny*, *ly*, *ty*, and *dy*, respectively. Basque has three compound consonant sounds called affricates, spelled **TS**, **TX**, **TZ**, correlates of **S**, **X**, and **Z**, respectively. **TS** is a sound halfway between *ts* and *ch* in English *its* and *itch*. **TX** is similar to English *ch*, and **TZ** comes close to English *ts* (ibid.).

This is the kind of clear exposition which the beginner needs.

The Basque language: A practical introduction will surely become a classic which will be used for many years. King is to be congratulated on a difficult endeavor which has been so well done.

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The verb in contemporary English. By BAS AARTS and CHARLES F. MEYER, eds. Cambridge: Cambridge University Press. 1995. Pp. 325.

Reviewed BY CHARLES PECK
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The verb in contemporary English contains an introductory summary chapter by the editors followed by seven chapters of theoretical papers and eight chapters of corpus-derived data papers. All are concerned with the finer details of English and indeed there seems to be a lot of rich detail there. After reading this book one cannot but wonder if there could possibly be so much detail in any other language. Is English so rich because of our long and wide literary history or is so rich just because of our human propensities to experiment and expand the possibilities in language?

In chapter two, the first paper in Part I, Charles F. Meyer distinguishes the general processes of 'complements' (following equating verbs: 'be', 'seem', 'appear', and others) and complementation (all the constituents that can follow other verbs). He adds these processes to the other processes 'dissimulation', and 'modification' and compares them all.

Richard Hudson looks at the COMP/C node of the Government and Binding derivation tree and at the exponents of that node such as 'that', 'if', 'whether', and 'for'. He argues that the verbs and the constituents that can co-occur with each different COMP are so different that the COMP node is not a good generalization and needs to be replaced with something better.

I. M. Schlesinger looks at the many different semantic relations that hold between verbs and their objects. He finds that no complete generalization can be made, but he suggests that a Defining Participant (DP) criterion is helpful in many cases. Samples of such combinations are: 'find a pencil', 'avoid the question', 'deserve a rest', 'miss the train', and 'cut the cake'. The author also discusses other criteria (completion, feat, recoverability, and garden-path constraint) for describing the relation between an object NP and its verb.

Bas Aarts considers secondary (usually adjectival) predicates that can be attached to the end of a clause to add some description of either the subject of the clause or of the object, as in 'Jim ate the meat raw' or 'John left the house angry'.

Rodney Huddleston wants to call the English Perfect (have +...-en) a secondary tense rather than an aspect as Comrie and others have.

Andrew Rosta studies the 'mediopassive' verbs that describe an NP that would normally be the object of the verb—for example: 'These pills swallow easily', and 'This book reads rapidly'.

Jennifer Coates looks at how 'can' and 'may' (and 'must' and 'have to') are used to express root possibilities (such as permission, obligation, possibility, and necessity) and epistemic confidence (in the truth of the proposition or the lack of such confidence) and how in many sentences the two kinds of meaning merge or the distinction is weak. Root meaning: 'You must finish this before dinner'; epistemic meaning: 'I must have a temperature'; ambiguous merging in softened written academic prose with passive voice: '...the pollen may be taken from the stamen of one rose and transferred to the stigma of another rose'.

In Part II, the papers are all based on the several large (million words or more) corpora of English written and (transcribed) oral texts.

Jan Aarts and Flor Aarts studied the uses of the 474 instances of the verb 'find' and the 864 instances of the verb 'want' in a million-word corpus and computed the frequencies of their different uses, meanings and environments. Examples are: 'We found it hard not to laugh' and '...she wanted Susan at home to look after her'.

Geoffrey Leech and Lu Li used some already-parsed texts to study noun phrase complements that function more as adjective phrase complements. Noun phrases in a complement position and without an article or with an indefinite article are usually not referential but are descriptive. For example: 'I hope his words will become a reality', 'Gasohol is becoming big business', and 'It seems such a waste'; where 'reality', 'business', and 'waste' refer not to some specific things but are more like descriptions of conditions.

John Algeo looks at verb+NP idioms in which the verb is somewhat bleached and the NP contains an eventive noun. Together they add up to some meaning. Examples are: 'give your attention to', 'make haste', 'take a good look', and 'He gave Helen a nudge'. Most are equivalent to a single verb such as 'listen to/attend to', 'hasten', 'look at/into', and 'nudge'. The author compares British and American uses of such idiomatic pairs.

Stig Johansson also used a tagged corpus to study verb+adverb combinations, especially those involving the adverb 'badly'. Sometimes the adverb precedes the verb and sometimes follows. 'Badly' has some statable meaning as 'some intensity (or undesirability) of manner or degree' but there are many exceptions. He discusses how one should treat these in a dictionary.

Edward Finegan and Douglas Biber use a corpus called 'ARCHER' (A Representative Corpus of Historical English Registers) to study the use and omission of 'that' to introduce complement sentences (following verbs of speaking, thinking, and perceiving) in sermons, medical texts, and letters from over the last three hundred years or so. They find that medical texts and (written) sermons are most likely to use the 'that' and letters are most likely to leave it out, e.g., 'I think (that Ø) they will come soon'.

Christian Mair looked at 'help' and 'help to' in corpora of British journalistic English made in 1961 and in 1991, and looks for any trends. He founds that the 'to' is increasingly omitted and that 'help'+bare infinity and 'help'+NP+bare infinity are increasing in usage and that 'help' is becoming a semi-auxiliary verb. Examples are: 'The emergency fund will help back the cost of some repairs', and 'His discoveries will help solve some of our problems'.

Mair also cites a finding by Gier Rohdenberg that British journalists are substituting infinitival verbs for prepositions, as in 'David McCreary is coming on to replace Tommy Jackson' instead of 'David McCreary is coming on instead of Tommy Jackson' and '...to fit size 16' instead of '...for size 16'. I have been looking at our own local newspaper to see if that is happening here too.

Jan Svartvik and Olof Ekedahl compute the frequencies of word classes in a corpus of conversational English and in some corpora of written English presentations. They ask, 'Why are scientific papers so poorly presented?' They found that good oral presentations involve more verbs of motion, speaking, attention, wanting, beginning, thinking, and giving, and more of a narrative or historical organization than do written presentations which are more expository in structure and use fewer such verbs and fewer pronouns. In truly spontaneous conversation there are more of 'you know', 'you see', 'I mean', 'I think', and 'thank you'. These seldom appear in any written version.

Anna-Brita Stenström examines a corpus of conversational English for the conversational comment clauses 'I think', 'I mean', 'you know', and 'you see', which occur as little pieces of conversation. They are called 'interjections', 'softeners', 'fumbles', and such. An extreme example (without prosodic markings) is '… but, I think, you see, I mean, having had the experience of, uh, being married …'

In conclusion this book appears to be a progress report on scholars doing research on English structure and usage, a collection of up-to-date papers by twenty-some of them, published so the rest of us can see what everyone in the field is doing. They dedicate the volume to Sidney Greenbaum.

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The Yoruba koiné–its history and linguistic innovations. By J. GBENGA FAGBORUN. München and Newcastle: LINCOM EUROPA. 1994. 181 pp.

Reviewed by MALCOLM ROSS
Australian National University

The term 'koiné' is normally used to refer to a *lingua franca* that has arisen through the leveling of differences among a set of dialects or closely related languages. Features which are regarded as emblematic of one dialect are replaced by alternatives that are common to several dialects. The best known koiné and the source of the term itself is of course the language in which the New Testament was written, the Koiné Greek, which came into being under the Macedonian Empire and continued to be used in the eastern Roman Empire. Pre-Koiné Greek had many dialects, one of which was Attic, the Athens dialect, and this formed the basis of the koiné through the elimination of emblematically Attic forms: it was 'de-atticized Attic' (Hock 1986:485). Koineisation typically occurs when the uprooting and movement of speakers causes the radical realignment of a dialect network, as happened to Greeks under the Macedonian Empire, or—in the case of Fiji Hindi, the best documented modern koiné—to the speakers of north Indian

Indo-Aryan languages who went as indentured laborers to nineteenth-century Fiji (Siegel 1987:185-210).

In the light of these presuppositions, it was something of a surprise to open the book under review and discover that the term 'koiné' was being used in a rather different sense, albeit one which will be of interest to many readers of *Notes on Linguistics*. The Yoruba Koiné to which Fagborun refers is literary Yoruba (LY), the more or less standardized written form which came into being when Samuel Ajayi Crowther, a native speaker, began to translate the Bible and the Anglican *Book of Common Prayer* into Yoruba in the 1840s. Yoruba is spoken by some twenty million people in southwestern Nigeria and in Benin, and is one of the three official national languages of Nigeria. It has considerable dialect variation, and the written language has evidently brought about a degree of standardization and change in the speech of at least the small minority who are bilingual in English and also literate in Yoruba, but Fagborun does not tell us much about these matters. It does seem, however, that the Yoruba Koiné described here is not a koiné in the sense outlined above: dialect differences in spoken Yoruba have not been leveled (at least, we are not told that they have) and there has not been the movement of speakers which is characteristic of Koineisation.

The author's main concern is with the present-day status of LY. The structure of LY includes a number of innovations which are calques on English structures—that is, somewhat literal translations of English structures into Yoruba by structures which were not previously found in Yoruba. These structures are apparently rejected by a number of scholars—particularly, it seems, native speakers—and do not appear in grammars of LY. Fagborun argues that this rejection is misguided. He takes issue with those who claim that the calques are very recent, and demonstrates with examples that they date back to the nineteenth century and to Crowther's writings. Not only do they date from the earliest LY, they have continued to be used by modern Yoruba writers including some of those who say they reject them, as Fagborun neatly demonstrates (p. 78). The aim of the present book, therefore, is to lay the basis for a grammar of LY which will reflect actual usage, including the English-based calques which are part of this usage.

The book has two parts. Part one deals with the history of LY, summarizes its syntactic innovations, and traces these back with examples to the early writings. Part two is entitled 'Mechanisms of linguistic innovation' and deals with a variety of theoretical issues which have bearing on the structural innovations of LY. Both parts contain a wealth of examples of LY from its beginnings to the present day, and the point that the innovations of LY indeed date back to its beginnings is well taken. However, both parts also suffer from a certain weakness in linguistic theory and methodology which becomes particularly obvious in Part two. For example, the author cites a claim that loan words are a necessary precondition of grammatical borrowing (p. 79), but as Thomason and Kaufman (1988:20-21) make clear in the most thoroughly published survey of contact-induced change to date (and listed in Fagborun's bibliography), this claim is invalid—a fact recognized by a number of scholars over the past sixty years. Later (p. 92) Fagborun writes that 'Linguists, writing the grammar of Yoruba today, ... will need to apply the rules of the Yoruba syntax in some cases, and those of the English language to account for English calques'. This confuses the synchronic and diachronic dimensions of LY. If, as the author argues, these English-based calques are now a part of LY, then the grammarian must include them among the rules of LY syntax, adding a note about their origins if he so chooses. One of the chapters of Part two is entitled 'Generative approach to linguistic innovation'. Although the author is quite eclectic in his citations of theoreticians, it is unfortunate that he adopts the position suggested by this title—essentially that linguistic innovation occurs in the course of child language acquisition when the child infers rules which differ from those of the older generation. Not only is this a controversial position, it is one that does not fit the Yoruba situation where speakers acquire the rules of LY when they learn it in school—not at their mother's knee.

The central methodological weakness of the book, however, has to do with the presentation of the English-based innovations of LY. Whilst Fagborun shows that the structures he labels as innovations occur in LY texts throughout its history and relates these innovations to their supposed English sources, he at no time shows that they ARE innovations. Since he says that these innovations do not occur in the speech of monolingual Yoruba speakers, he could do this quite simply by comparing LY innovations with the structures used by monolingual speakers (which are presumably fairly similar to the structures used at the time Crowther created LY). For example, the so-called 'passive' in LY is formed by using the pronoun *a* 'we' as an impersonal pronoun in translation equivalents of the English passive. Thus we find sentences with literal meanings like 'we shall see me' (p. 47) which must mean 'someone will see me', translating English 'I shall be seen'. Fagborun says (p. 48):

> I have never met any Yoruba monoglot who uses [this] kind of sentence ... It does not feature in any local dialects of Yoruba either, but only peculiar [*sic*] to bilingual usage or confined to literary Yoruba.

How DOES a Yoruba monoglot express an action with an impersonal agent? Is there an impersonal construction in monoglot Yoruba? We need answers to these questions in order to understand the degree of innovation in LY. At the same time, Fagborun implies that this construction does occur in the speech of Yoruba speakers who are bilingual in English. Is this common? One would assume not, otherwise the structure would surely have percolated into monoglot speech. Unfortunately, the author does not address these questions because, in spite of the book's title, his agenda is rooted in present-day linguistic politics. (A consequence of this is that he seems to assume that this structure should be labeled 'passive' because it translates the English passive, but 'impersonal' would be linguistically more appropriate.)

The discussion of calqued prepositional phrases (pp. 51-55) is similarly confusing. One could infer from the data and discussion that the innovated LY prepositions are derived from relational nouns (like 'inside') and from serialized verbs (such as 'give'), but the author does not tell us explicitly how these morphemes are used by monoglot speakers nor does he make any reference to serialization despite its frequent occurrence in linguistic writings on West African languages.

In summary, I would recommend this book to the reader who is interested in how Bible translation has resulted in the creation of a literary language which is significantly different from the spoken language, but only with reserve to the reader who, like me, is attracted by the promise of its title.

Unfortunately, the preparation of the book for publication leaves a good deal to be desired. It is set in what appears to be 8 or 9 point Times—too small for comfortable reading. The spacing in quotations is sometimes odd, and the bibliography has a ragged left margin. The presentation of diagrams, especially the one on p. 113, is crude. One wonders whether the book was revised, edited, or copy-edited after its submission as part of a Ph.D. dissertation, as neither its weaknesses in linguistics nor infelicities which include missing glosses (e.g. of *li* and *ni* on p. 29), incorrect glosses (e.g. '2pl' for '1pl' on p. 47), misspellings ('necessarry' and 'subjecct', both on p. 48), and a reference (Sankoff 1988 on p. 44) missing from the bibliography were picked up prior to publication.

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Inter-cultural communication at work. By MICHAEL CLYNE. 1994. New York: Cambridge University Press. 250 pp. Hardback $54.95

Reviewed by CRAIG SODERBERG
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What is the impact of cultural values on discourse? Is it possible to develop a framework for a linguistics of inter-cultural communication? Michael Clyne seeks to answer these questions in this, his most recent book. The textbook consists of: chapter 1, Introducing the field; chapter 2, Setting up the project; chapter 3, Speech acts in inter-cultural discourse; chapter 4, Variation in communication patterns and inter-cultural communication breakdown in oral discourse; chapter 5, Written discourse across cultures; chapter 6, Toward a linguistics of inter-cultural communication; chapter 7, Some theoretical and practical implications.

Chapter 3, Speech acts in inter-cultural discourse, is the most helpful chapter for field linguists. Clyne analyzed cultural and gender variation for various speech acts including complaints, directives, commissives, apologies, and small talk. His project included individuals from European, Latin American South East Asian, South Asian, Turkish, and Lebanese cultures.

In the area of COMPLAINTS, Clyne found that most complaints appearing in the workplace are complaints about others. He also found that complaints are performed predominantly by men, especially Europeans and people of higher status. South East Asian women were the least likely to complain.

The second speech act, DIRECTIVES, includes both requests and instructions. Clyne found that directives are performed by men, especially Europeans, often to women. Directives are not always performed in the same way to different types of interlocutors. For example, one speaker gave a more polite and implicit directive to a Salvadorian women than he gave to a Cambodian woman of the same workplace status. Directives are sometimes accompanied by an explanation or justification. Complaints and directives both function as a means of gaining and maintaining control and power.

The third speech act, COMMISSIVES, involves a speaker offering something to the hearer. Although males performed most of the complaints and directives, south East Asian females performed most of the commissives. Most commissives were a response to a directive from a European male. Clyne believes that the distribution of complaints, directives and commissives indicates cultural differences and workplace power relationships.

The fourth area of speech acts, APOLOGIES, involves the acknowledgment of failure or fault by the speaker to the hearer. Most apologies are performed by the superordinate to the subordinate and are largely performed by Europeans, both male and female. South East Asians, especially females who rarely apologize themselves, will sometimes try to terminate an apology.

Clyne's final speech act is SMALL TALK. Small talk, though thematically considered unimportant, is an essential aspect of conversation in that it provides a means of 'easing things along.' Clyne found institutionally oriented small talk about people's activities in the workplace, the people they work with, and their networks and dislikes. Small talk also plays an important function in the social cohesion and solidarity that characterize the multilingual workplace. The field linguist must realize that tolerance for small talk is subject to some cultural variation and that miscommunication will arise where small talk occurs in a context in which come other kinds of discourse is expected. As field linguists from various continents are aware of these differences (regarding small talk and the four other speech acts), they will be able to work together more efficiently.

Chapter 6, Towards a linguistics of inter-cultural communication, Clyne proposes four cultural parameters to help account for differences in the structure of written discourse: form vs. content, verbal vs. literate, rhythm of discourse, and directionality. These parameters may also help explain cultural variation in spoken discourse.

Clyne illustrates the first parameter, form vs. content, by comparing the cultural difference between the English and the Germans. According to Harras, the English compliment that one's academic text is 'easy to follow' could be interpreted as an insult in German. Hofstede cites the facetious remarks of the German psychologist Stroebe: 'German students are brought up in the belief that anything which is easy enough for them to understand is dubious and probably unsuccessful'. Also, some academics consider simplicity of style and discourse structures and the use of advance organizers to be 'talking down' to a competent and informed reader.

Clyne also observes that successful inter-cultural communication may need to yield to a certain amount of ambiguity—something which some cultures will tolerate and others will not. In light of this, Clyne has made an attempt to adapt Grice's (1967) Cooperative Principle to cope with cultural differences such as these that exist in inter-cultural communication.

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The evolution of grammar: Tense, aspect, and modality in the languages of the world. By JOAN BYBEE, REVERE PERKINS, and WILLIAM PAGLIUCA. Chicago: University of Chicago Press. 1994. 398 pp.

Reviewed by THOMAS WILLETT,
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It's always encouraging to see the results of a long-term research project published in an accessible and understandable format. Bybee and her team have done just that in this final report on their landmark study of the universals of grammaticalization--the process by which lexical items and constructions come to serve grammatical functions. Whether or not one agrees with all of their conclusions, there is no doubt that they have established for the linguistic community a high standard for careful, scientific investigation in an area of inquiry that has gained much interest in recent years.

This book was ten years in the making. A report of the pilot study was published in Bybee 1985, which was followed by several reports of preliminary findings of the larger, more comprehensive study (Bybee 1986,1988a, 1988b, 1990a, 1990b; Bybee and Dahl 1989; Bybee and Pagliuca 1985,1987; Bybee, Pagliuca, and Perkins 1990, 1991). The goal these investigators pursued was two-fold: (1) to study the relationship between the meaning and the form of grammatical morphemes ('grams') associated with verbs in a representative sample of the world's languages, and (2) to draw conclusions about the processes of change that mold the phonetic and semantic shape of these grams over time. To be able to make statistical claims about the tendencies they observed, they used a stratified sample of seventy-six randomly selected, genetically and areally unrelated languages for which there was adequate reference material available.

Their results form a solid basis for all further language- and language family-specific research on grammaticalization. They have confirmed several general hypotheses about how grams change over time that we as field linguists need to take into account before we can say that we have described well the linguistic systems we have studied. They have also compiled a detailed set of definitions for the ninety-plus grammatical meanings they found which is the by far the most extensive list yet made available. It is organized semantically under tense, aspect, and modal categories for easy reference.

This book is not a typical research summary—rather it is a thorough investigation into the topic, yet it is well laid out and relatively easy to follow both the hypotheses they attempt to verify as well as the means they use to do so. There are copious figures and tables throughout the book summarizing partial results, and there are concise conclusions to each chapter. The appendices provide extensive information about the languages in their sample, the specific grams they catalogued in each language, and the sources of information they used. The bibliography is a good compilation of the major publications on grammaticalization up to the time of publication. The author, language, and subject indices are also very useful.

The first two chapters serve to introduce the study. Chapter 1 describes the theoretical background, including a helpful discussion of the eight major hypotheses the authors seek to test. The major premises these hypotheses point to is that the lexical source of a gram determines the path of grammaticalization it will follow, and that these paths are of development are unidirectional. Moreover, the process of grammaticalization is characterized by a series of changes in which the original concrete meanings gradually become more abstract as the form of the morpheme gradually erodes. Chapter 2 then describes their sampling procedure and how they coded information about grams from their sources. Throughout this discussion one is struck with how openly they discuss the pros and cons of each step in the process and what its effect is on the results of the study.

Chapter 3 jumps into the first of the major notional areas and its related paths of grammaticalization that are described at length, namely anterior, perfective and related senses. Here one is first taken through the authors' presuppositions about the nature of anteriors and perfects, and how they relate to meanings like resultatives and evidentials. The discussion in this and all subsequent chapters is amply illustrated with key examples taken both from the sample and from other languages which carefully guide the reader through the logical steps of the analysis. They are thus not only able to tell what they discovered about this area of grammatical meaning from the languages they sampled, but they are able to relate it to significant discoveries by other writers studying other languages.

Before continuing their substantive discussion of other notional areas, the authors provide in Chapter 4 an explanation of their approach to quantifying the information they found on grammaticalization. This helps one to be able to understand better the statistical claims that are made throughout the remainder of the book. It also makes it easier to understand their interpretation of grammaticalization phenomena like phonetic reduction, loss of autonomy, and how they view morphological typologies.

In Chapter 5 the authors continue with a detailed discussion of the meanings of progressive, imperfective, present, and related senses. Here again they define each meaning and make helpful generalizations about typical lexical sources for the grams that encode these meanings. This chapter probably illustrates best the service they do for field linguists by carefully distinguishing between such meanings as habitual, iterative, continuative, and frequentative. We often use these labels without a clear concept of how they are all interrelated.

Chapter 6 attempts to remap the landscape in the area of mood and modality. First, four major subareas are defined: agent-oriented modality, speaker-oriented modality, epistemic modality, and subordinating moods; then the details of specific meanings in each area are discussed. Two significant findings are described in this chapter. One is the tendency for languages to use inflectional morphology to encode epistemic modality (such as degrees of possibility and types of evidence) while agent-oriented modality (such as ability, desire, and permission) are usually encoded with less grammaticalized forms like particles and phrases. Because of this, agent-oriented modalities tend to develop into epistemic modalities overtime.

Chapter 7 describes the area of future reference in great detail. Here again many helpful distinctions are made, such as the difference between prediction and intention. The authors again amass considerable evidence, both from their sample and from their own extensive research into this area of meaning, to show that futures tend to develop from three main sources—agent-oriented modalities, movement verbs, and temporal adverbs.

Chapter 8 concludes the discussion of grammatical meaning by summarizing what the authors discovered in each notional area about the mechanisms of meaning change. After showing how there are at least three distinct stages of development of grammatical meaning, they propose explanations of how it changes at each stage. What they find concurs with other general treatments of grammaticalization, such as Hopper and Traugott (1993), namely that metaphor, inference, and generalization are the primary mechanisms in the early stages of change when lexical forms start down the path of grammaticalization—that inference continues to drive further grammaticalization throughout the life of the morphemes, but metaphor and generalization affect the changes less and less over time; and that in the latter stages of grammaticalization, grams tend to absorb meanings from their context and harmonize with others around them in the same notional domain.

This study makes it abundantly clear that the data field linguists gather provides the foundation upon which theoretical linguists can build analyses that further elucidate the data. That is, both a synchronic and a diachronic approach to language description is essential. What we discover in the course of our field programs can, if properly understood and described, become vital information for studies like this one, which in turn provide us with valuable insights into the nature of language that can guide our field research. Without an historical perspective, such as Bybee, et al., give us for grammatical morphology, our descriptions of the languages we study will lack depth and run the risk of appearing ad hoc to those who understand better why languages are organized the way they are.

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